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The business magazine of the farm & industrial equipment industry

March 31, 1984

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Implement & Tractor

RED BOOK

- Tractor and equipment specifications
- Hydraulic components data
- Nebraska test reports
- Full contents page A2

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The business magazine of the farm and industrial equipment industry

68th annual RED BOOK issue

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Abbreviations:
DNA – Does not apply.
NA – Not available.
Std. – Standard.
Opt. – Optional
Linear measurements may be to nearest ¼-inch.

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The Nebraska Tractor Test Law

Purpose of the Law—The Nebraska Tractor Test Law originated in 1919 for the purpose of verifying advertising claims on tractors offered for sale to Nebraska farmers.

Its position as the only independent test laboratory in the United States devoted to the evaluation of tractor performance proved of unique value to the industry. The Agricultural Tractor Test Code used in the Nebraska Tests was developed with the approval and assistance of the American Society of Agricultural Engineers and the Society of Automotive Engineers, and is revised and updated periodically as the need arises. The Test Code (ASAE S209.4 or SAE J708c) is published in the ASAE Yearbook and SAE Handbook.

Provisions of the Law—Stated briefly, the Nebraska Tractor Test Law provides:

That a stock unit of each agricultural tractor model sold in Nebraska shall be tested and passed upon by a board of three engineers under the supervision and direction of the University of Nebraska. Each tractor must be certified as a stock model and will be equipped with the common power consuming accessories. An official representative of the manufacturer is present during the test to see that the performance meets company standards.

The Department of Agriculture shall deny to any manufacturer the right to do business in the State on complaint of two or more bona fide customers that the company has failed to maintain an adequate service station with a full supply of replacement parts within the state and within reasonable distance of customers.

The law further states that it shall be unlawful to publish excerpts from any official test in advertising material without publishing the entire report.

The provisions of the Nebraska Test Law do not apply to any tractor the engine of which develops less than 20 horsepower; or to tractors manufactured, sold and used for heavy construction when identical units are not sold and used for agricultural purposes.

Explanation of Test Report

General

Tractors are tested at the University of Nebraska according to the Agricultural Tractor Test Code approved by the American Society of Agricultural Engineers and the Society of Automotive Engineers or official Nebraska test procedure.

The manufacturer selects the tractor to be tested and certifies that it is a stock model. Each tractor is equipped with the common power consuming accessories such as power steering, power lift pump, generator, etc., if available. Power consuming accessories may be disconnected only when the means for disconnecting can be reached from the operating station. An official representative of the company is present during the test to see that the tractor gives its optimum performance. Additional weight may be added to the tractor as ballast if the manufacturer recommends use of such ballast. The static tire loads and the tire inflation pressures must conform to the specifications of Tire and Rim Association.

Preparation for Test

The engine crankcase is drained and refilled with new oil conforming to specifications in the operator's manual. The operator's manual is also used as the guide for selecting the proper fuel and for routine lubrication and maintenance operations.

The tractor is limbered up for a minimum of three hours on the drawbar. Preliminary adjustment of the tractor is permitted at this time. Any parts added or replaced during the limber-up run, or any subsequent runs, are mentioned in the individual test reports. The tractor is equipped with approximately the amount of added ballast that is to be used during the drawbar runs.

PTO Performance

Power take-off performance runs are made by connecting the power take-off to a dynamometer. During a preliminary power take-off run the manufacturer's representative may make adjustment for the fuel, ignition or injection timing and governor control settings. These settings must be maintained for the remainder of the test. The manually operated governor control mechanism is set to provide the high-idle speed specified by the manufacturer. During the power take-off runs an ambient air temperature of approximately 75°F. (24.0°C) is maintained.

Maximum power is obtained at the rated engine speed specified by the manufacturer with the governor control lever set for maximum power. This same setting is used for all subsequent PTO runs. Time of the run is two hours. Whenever the power take-off speed during the maximum power run differs from the speeds set forth in the ASAE and SAE standards, an additional run is made at either 540 or 1000 rpm of the power take-off shaft. Time of this run is one hour.

Drawbar Performance

Maximum drawbar power is shown for the normal field speed selected by the manufacturer. All engine adjustments are the same as those used in the power take-off runs. If the manufacturer specifies a different rated engine speed for drawbar operations, then the position of the manually operated governor control is changed to provide the high-idle speed specified.

Maximum drawbar power is determined within the following limits: (1) slip of the drivers must not exceed 15% for pneumatic tires on the concrete test course or 7% for steel cleats on the well packed earthen test course, (2) ground speeds must not exceed 10 miles per hour, (3) safe stability limits of the tractor must not be exceeded, (4) no other operating limit of the tractor must be exceeded. Drawbar load is applied until the manufacturer's rated engine speed is obtained with maximum governor control lever setting. Travel speed, drawbar pull and other data are recorded over two 500-foot straight level areas.

Fuel consumption is determined at the manufacturer's selected travel speed with the drawbar pull set: (1) to give rated engine rpm, (2) 75% of the pull at rated engine rpm, (3) 50% of the pull at rated engine rpm, and (4) maintaining the same load and travel speed as in (3) by shifting to a higher gear and reducing the engine rpm.

This summary shows the drawbar horsepower, corresponding travel speed and fuel consumption at 100%, 75% or 50% loads, and 50% of pull at reduced engine speed.

Also shown is the maximum drawbar horsepower produced for two 500-foot travel sections and corresponding travel speed, the maximum drawbar pull and the corresponding drive-wheel slippage.

In addition, the "lugging ability" obtained by increasing the load so that the full throttle engine speed drops to 80% of rated is given as a percent increase with respect to the pull at rated engine rpm.

The maximum drawbar horsepower and the corresponding speed and drawbar pull for other selected gears or travel speeds are shown in the individual test reports.

Sound Measurement

Sound is recorded during each of the Drawbar Performance runs as the tractor travels on a straight section of the test course. The dB(A) sound level is obtained with the microphone located near the right ear of the operator. Bystander sound readings are taken with the microphone placed 25 feet (7.5 m) from the line of travel of the tractor. An increase of 10dB(A) will approximately double the loudness to the human ear.

Individual copies of any test report, annual summary booklets or annual subscription (at $4.50) are available. For complete information write to **Department of Agricultural Engineering, University of Nebraska—Lincoln, Lincoln, Nebraska 68583.**

NEBRASKA TRACTOR TEST 1453 — STEIGER PANTHER CP-1325 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)								
299.10 (223.04)	2100	18.071 (68.406)	0.421 (0.256)	16.55 (3.261)	185 (84.9)	67 (19.3)	75 (23.8)	28.890 (97.557)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
260.94 (194.58)	2156	16.355 (61.910)	0.437 (0.266)	15.95 (3.143)	180 (82.2)	66 (19.2)	75 (23.9)	....
0.00 (0.00)	2252	4.590 (17.375)	....	....	170 (76.9)	66 (18.9)	73 (22.8)	....
134.08 (99.98)	2214	10.526 (39.845)	0.547 (0.333)	12.74 (2.509)	174 (79.2)	66 (19.2)	74 (23.3)	....
299.79 (223.55)	2100	18.127 (68.618)	0.422 (0.257)	16.54 (3.258)	186 (85.3)	68 (19.7)	76 (24.2)	....
67.52 (50.35)	2234	7.713 (29.197)	0.797 (0.485)	8.75 (1.724)	172 (77.8)	68 (19.7)	75 (23.9)	....
199.10 (148.47)	2194	13.413 (50.774)	0.470 (0.286)	14.84 (2.924)	178 (81.4)	68 (19.7)	76 (24.2)	....
Av 160.24 **Av** (119.49)	**2192**	**11.787** **(44.619)**	**0.513** **(0.312)**	**13.59** **(2.678)**	**177** **(80.6)**	**67** **(19.4)**	**75** **(23.7)**	**28.960** **(97.794)**

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
261.75 (195.18)	14136 (62.88)	6.94 (11.18)	2099	2.94	17.798 (67.374)	0.474 (0.288)	14.71 (2.897)	184 (84.4)	65 (18.3)	74 (23.1)	28.835 (97.371)
75% of Pull at Maximum Power—Ten Hours 7th Gear											
209.22 (156.01)	10811 (48.09)	7.26 (11.68)	2180	2.26	15.092 (57.129)	0.505 (0.306)	13.86 (2.731)	176 (79.8)	49 (9.7)	53 (11.9)	28.860 (97.456)
50% of Pull at Maximum Power—Two Hours 7th Gear											
142.21 (106.04)	7208 (32.06)	7.40 (11.91)	2203	1.44	11.901 (45.052)	0.584 (0.355)	11.95 (2.354)	180 (82.2)	74 (23.3)	86 (30.0)	28.630 (96.948)
50% of Pull at Reduced Engine Speed—Two Hours 10th Gear											
142.18 (106.02)	7206 (32.06)	7.40 (11.90)	1289	1.48	9.410 (35.621)	0.462 (0.281)	15.11 (2.976)	182 (83.3)	74 (23.1)	86 (29.7)	28.670 (96.814)
MAXIMUM POWER IN SELECTED GEARS											
234.03 (174.52)	33802 (150.36)	2.60 (4.18)	2129	14.81	2nd Gear			177 (80.6)	49 (9.4)	53 (11.7)	28.830 (97.355)
256.08 (190.96)	29501 (131.22)	3.26 (5.24)	2099	8.68	3rd Gear			180 (81.9)	52 (11.1)	58 (14.4)	28.820 (97.321)
260.15 (194.00)	24224 (107.75)	4.05 (6.48)	2095	5.98	4th Gear			186 (85.3)	69 (20.6)	80 (26.7)	28.760 (97.118)
264.50 (197.24)	20226 (89.97)	4.90 (7.89)	2097	4.56	5th Gear			186 (85.3)	69 (20.6)	80 (26.7)	28.780 (97.186)
265.31 (197.84)	16949 (75.39)	5.87 (9.45)	2099	3.52	6th Gear			186 (85.3)	68 (20.0)	79 (26.1)	28.790 (97.220)
266.97 (199.08)	14415 (64.12)	6.95 (11.18)	2099	2.78	7th Gear			186 (85.6)	66 (18.9)	77 (25.0)	28.810 (97.287)
264.37 (197.14)	11844 (52.68)	8.37 (13.47)	2099	2.45	8th Gear			186 (85.6)	67 (19.4)	77 (25.0)	28.760 (97.118)

LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2099	1888	1667	1470	1254	1048
Pull—lbs (kN)	14415 (64.12)	16663 (74.12)	18086 (80.45)	19160 (85.23)	19669 (87.49)	19164 (85.25)
Increase in Pull %	0	16	25	33	36	33
Power—Hp (kW)	266.97 (199.08)	275.82 (205.68)	266.99 (199.09)	244.91 (182.63)	214.33 (159.83)	174.72 (130.29)
Speed—Mph (km/h)	6.95 (11.18)	6.21 (9.99)	5.54 (8.91)	4.79 (7.71)	4.09 (6.58)	3.42 (5.50)
Slip %	2.78	3.44	3.76	4.25	4.25	4.25

Department of Agricultural Engineering

Dates of Test: September 27 to October 13, 1982

Manufacturer: STEIGER TRACTOR, INC., 406 Main Avenue, Fargo, North Dakota 58126

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8376 **Fuel weight** 6.974 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SF **To motor** 8.645 gal *(32.725 l)* **Drained from motor** 6.291 gal *(23.813 l)* **Transmission and hydraulic lubricant** SAE 10 hydraulic transmission fluid **Final Drive lubricant** SAE 85W-90 **Total time engine was operated** 48.0 hours.

ENGINE: Make Caterpiller Diesel **Type** six cylinder vertical with turbocharger **Serial No.** 90U18642 **Crankshaft** lengthwise **Rated rpm** 1700 to 2100 **Bore and stroke** 5.4" × 6.5" *(137 mm × 165 mm)* **Compression ratio** 14.5 to 1 **Displacement** 893 cu in *(14636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prestrainer **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** P32500511- **Tread width** rear 79" *(2007 mm)* to 136.4" *(3464 mm)* front 79" *(2007 mm)* to 136.4" *(3464 mm)* **Wheel base** 141.5" *(3594 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 75.5" *(1918 mm)* Vertical distance above roadway 45.5" *(1156 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph** *(km/h)* first 2.4 *(3.9)* second 2.9 *(4.7)* third 3.4 *(5.5)* fourth 4.1 *(6.6)* fifth 4.9 *(7.9)* sixth 5.8 *(9.3)* seventh 6.8 *(10.9)* eighth 8.2 *(13.2)* ninth 9.6 *(15.4)* tenth 11.6 *(18.7)* eleventh 14.0 *(22.5)* twelfth 16.5 *(26.5)* reverse 3.0 *(4.8)*, 5.1 *(8.2)* **Clutch** multiple wet disc hydraulically power actuated and operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal and mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 276" *(7.01 m)* left 276" *(7.01 m)* **Turning space diameter** (on concrete surface without brake) right 581.5" *(14.77 m)* left 581.5" *(14.77 m)* **Power take-off** 1002 rpm at 2100 engine rpm.

SUPPLEMENTARY TESTS
POWER AND FUEL CONSUMPTION AT 1900 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—907 rpm)								
308.35 (229.94)	1900	17.730 (67.118)	0.401 (0.244)	17.39 (3.425)	186 (85.7)	66 (19.1)	75 (23.8)	28.930 (97.692)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
272.04 (202.86)	16349 (72.72)	6.24 (10.04)	1900	3.60	17.727 (67.102)	0.454 (0.276)	15.35 (3.023)	184 (84.4)	66 (18.6)	71 (21.4)	28.740 (97.051)
MAXIMUM POWER IN SELECTED GEARS											
250.87 (187.08)	33742 (150.09)	2.79 (4.49)	1927	14.68	3rd Gear			179 (81.7)	50 (10.0)	55 (12.8)	28.830 (97.355)
260.27 (194.08)	27287 (121.38)	3.58 (5.76)	1899	7.72	4th Gear			187 (85.8)	67 (19.4)	78 (25.6)	28.760 (97.118)
268.60 (200.30)	22913 (101.92)	4.40 (7.07)	1899	5.51	5th Gear			189 (86.9)	69 (20.6)	80 (26.7)	28.770 (97.152)
272.78 (203.41)	19390 (86.25)	5.28 (8.49)	1899	4.25	6th Gear			188 (86.7)	68 (20.0)	79 (26.1)	28.790 (97.220)
275.74 (205.62)	16559 (73.66)	6.24 (10.05)	1898	3.35	7th Gear			186 (85.6)	67 (19.4)	78 (25.6)	28.800 (97.253)
274.21 (204.48)	13634 (60.65)	7.54 (12.14)	1900	2.94	8th Gear			188 (86.7)	67 (19.4)	77 (25.0)	28.770 (97.152)
272.91 (203.51)	11403 (50.72)	8.98 (14.44)	1898	2.28	9th Gear			186 (85.6)	67 (19.4)	76 (24.4)	28.770 (97.152)

POWER AND FUEL CONSUMPTION AT 1700 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—811 rpm)								
298.89 (222.88)	1700	16.781 (63.523)	0.392 (0.238)	17.81 (3.509)	187 (86.1)	66 (19.1)	74 (23.3)	28.940 (97.726)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
262.29 (195.59)	17656 (78.54)	5.57 (8.97)	1701	3.84	16.848 (63.778)	0.448 (0.272)	15.57 (3.067)	189 (86.9)	71 (21.7)	82 (27.5)	28.720 (96.983)
MAXIMUM POWER IN SELECTED GEARS											
248.78 (185.52)	33679 (149.81)	2.77 (4.46)	1921	15.00	3rd Gear			180 (82.2)	51 (10.6)	57 (13.9)	28.830 (97.355)
245.57 (183.12)	29262 (130.16)	3.15 (5.06)	1701	9.40	4th Gear			188 (86.4)	67 (19.4)	78 (25.6)	28.760 (97.118)
258.01 (192.40)	24771 (110.18)	3.91 (6.29)	1700	6.29	5th Gear			190 (87.5)	69 (20.6)	80 (26.7)	28.770 (97.152)
261.80 (195.29)	20930 (93.10)	4.69 (7.55)	1699	4.72	6th Gear			190 (87.8)	69 (20.6)	80 (26.7)	28.780 (97.186)
266.20 (198.51)	17894 (79.59)	5.58 (8.98)	1702	3.84	7th Gear			189 (87.2)	68 (20.0)	79 (26.1)	28.800 (97.253)
266.14 (198.46)	14832 (65.98)	6.73 (10.83)	1700	3.11	8th Gear			189 (86.9)	67 (19.4)	76 (24.4)	28.770 (97.152)
266.54 (198.76)	12472 (55.48)	8.01 (12.90)	1699	2.61	9th Gear			188 (86.7)	67 (19.4)	76 (24.4)	28.770 (97.152)

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 153°F *(67.5°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1453.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Steiger Panther CP-1325 Diesel

TRACTOR SOUND LEVEL WITH CAB	1700 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	73.0	73.0	73.5
75% of Pull at Maximum Power—Ten Hours			78.0
50% of Pull at Maximum Power—Two Hours			75.0
50% of Pull at Reduced Engine Speed—Two Hours			74.0
Bystander in 12th gear			92.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each inner)	205 lb *(93 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		13.5 in *(345 mm)*	13.5 in *(345 mm)*
Static Weight with Operator	—Rear	16560 lb *(7512 kg)*	16560 lb *(7512 kg)*
	Front	19310 lb *(8759 kg)*	18900 lb *(8573 kg)*
	Total	35870 lb *(16271 kg)*	35460 lb *(16085 kg)*

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1455 — STEIGER PANTHER CP-1360 DIESEL
12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)								
334.33 *(249.31)*	2100	19.962 *(75.564)*	0.416 *(0.253)*	16.75 *(3.299)*	186 *(85.4)*	64 *(18.1)*	75 *(24.1)*	28.873 *(97.501)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
293.95 *(219.20)*	2173	18.243 *(69.057)*	0.433 *(0.263)*	16.11 *(3.174)*	180 *(81.9)*	66 *(18.9)*	75 *(23.9)*	....
0.00 *(0.00)*	2292	5.022 *(19.010)*	....	....	167 *(75.0)*	66 *(18.9)*	75 *(23.9)*	....
151.85 *(113.23)*	2242	11.740 *(44.441)*	0.539 *(0.328)*	12.93 *(2.548)*	172 *(77.5)*	66 *(18.9)*	76 *(24.4)*	....
335.30 *(250.03)*	2100	20.037 *(75.848)*	0.417 *(0.253)*	16.73 *(3.296)*	185 *(85.0)*	66 *(18.9)*	76 *(24.2)*	....
76.81 *(57.28)*	2268	8.508 *(32.206)*	0.772 *(0.470)*	9.03 *(1.779)*	168 *(75.8)*	66 *(18.9)*	76 *(24.4)*	....
224.90 *(167.71)*	2214	15.045 *(56.952)*	0.466 *(0.284)*	14.95 *(2.945)*	176 *(80.3)*	66 *(18.9)*	76 *(24.2)*	....
Av 180.47 ***Av (134.58)***	**2215**	**13.099** ***(49.585)***	**0.506** ***(0.308)***	**13.78** ***(2.714)***	**175** ***(79.3)***	**66** ***(18.9)***	**76** ***(24.2)***	**28.850** ***(97.422)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
289.91 *(216.19)*	15778 *(70.18)*	6.89 *(11.09)*	2099	3.18	19.850 *(75.141)*	0.477 *(0.290)*	14.60 *(2.877)*	181 *(82.5)*	64 *(17.8)*	65 *(18.3)*	28.960 *(97.794)*
75% of Pull at Maximum Power—Ten Hours 7th Gear											
232.20 *(173.15)*	12003 *(53.39)*	7.25 *(11.68)*	2196	2.52	16.813 *(63.642)*	0.505 *(0.307)*	13.81 *(2.721)*	176 *(80.0)*	59 *(14.7)*	64 *(17.7)*	28.795 *(97.230)*
50% of Pull at Maximum Power—Two Hours 7th Gear											
158.67 *(118.32)*	8002 *(35.59)*	7.44 *(11.97)*	2232	1.65	13.395 *(50.705)*	0.588 *(0.358)*	11.85 *(2.333)*	174 *(78.9)*	69 *(20.6)*	71 *(21.4)*	28.950 *(97.760)*
50% of Pull at Reduced Engine Speed—Two Hours 10th Gear											
159.24 *(118.75)*	8002 *(35.59)*	7.46 *(12.01)*	1311	1.60	10.759 *(40.727)*	0.471 *(0.286)*	14.80 *(2.916)*	175 *(79.4)*	65 *(18.1)*	65 *(18.3)*	28.955 *(97.777)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %				Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
251.02 *(187.19)*	36123 *(160.68)*	2.61 *(4.19)*	2147	14.83		2nd Gear		176 *(80.9)*	60 *(15.6)*	60 *(15.6)*	28.930 *(97.692)*
277.28 *(206.77)*	32214 *(143.30)*	3.23 *(5.19)*	2098	8.82		3rd Gear		178 *(81.1)*	67 *(19.4)*	72 *(22.2)*	28.940 *(97.726)*
287.64 *(214.49)*	27057 *(120.35)*	3.99 *(6.42)*	2099	6.57		4th Gear		181 *(82.5)*	63 *(17.2)*	66 *(18.9)*	28.930 *(97.692)*
289.67 *(216.01)*	22276 *(99.09)*	4.88 *(7.85)*	2099	4.66		5th Gear		186 *(85.3)*	74 *(23.3)*	81 *(27.2)*	28.740 *(97.051)*
288.08 *(214.82)*	18505 *(82.31)*	5.84 *(9.40)*	2101	3.62		6th Gear		187 *(85.8)*	72 *(22.2)*	79 *(26.1)*	28.740 *(97.051)*
294.07 *(219.29)*	16004 *(71.19)*	6.89 *(11.09)*	2099	3.06		7th Gear		185 *(85.0)*	68 *(20.0)*	73 *(22.8)*	28.760 *(97.118)*
291.95 *(217.70)*	13152 *(58.50)*	8.32 *(13.40)*	2099	2.40		8th Gear		186 *(85.3)*	71 *(21.7)*	77 *(25.0)*	28.760 *(97.118)*

LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2099	1893	1682	1467	1255	1045
Pull—lbs *(kN)*	16004 *(71.19)*	18275 *(81.29)*	19713 *(87.69)*	21093 *(93.83)*	21932 *(97.56)*	21673 *(96.41)*
Increase in Pull %	0	14	23	32	37	35
Power—Hp *(kW)*	294.07 *(219.29)*	301.43 *(224.78)*	287.48 *(214.38)*	267.38 *(199.39)*	237.37 *(177.01)*	195.50 *(145.78)*
Speed—Mph *(km/h)*	6.89 *(11.09)*	6.19 *(9.95)*	5.47 *(8.80)*	4.75 *(7.65)*	4.06 *(6.53)*	3.38 *(5.44)*
Slip %	3.06	3.54	4.03	4.35	4.66	4.51

Department of Agricultural Engineering

Dates of Test: September 20 to October 9, 1982

Manufacturer: STEIGER TRACTOR, INC., 406 Main Avenue, Fargo, North Dakota 58126

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8372 **Fuel weight** 6.971 lbs/gal *(0.835 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SF **To motor** 8.148 gal *(30.843 l)* **Drained from motor** 6.239 gal *(23.619 l)* **Transmission and hydraulic lubricant** SAE 10 hydraulic transmission fluid **Final drive lubricant** SAE 85W-90 **Total time engine was operated** 59.0 hours.

ENGINE: Make Caterpiller Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 90U18786 **Crankshaft** lengthwise **Rated rpm** 1700 to 2100 **Bore and stroke** 5.4" × 6.5" *(137 mm × 165 mm)* **Compression ratio** 14.5 to 1 **Displacement** 893 cu in *(14636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prestrainer **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** C36000506- **Tread width** rear 79" *(2007 mm)* to 136.4" *(3464 mm)* front 79" *(2007 mm)* to 136.4" *(3464 mm)* **Wheel base** 141.5" *(3594 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 75.5" *(1918 mm)* Vertical distance above roadway 45.4" *(1153 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph (km/h)** first 2.4 *(3.9)* second 2.9 *(4.7)* third 3.4 *(5.5)* fourth 4.1 *(6.6)* fifth 4.9 *(7.9)* sixth 5.8 *(9.3)* seventh 6.8 *(10.9)* eighth 8.2 *(13.2)* ninth 9.6 *(15.4)* tenth 11.6 *(18.7)* eleventh 14.0 *(22.5)* twelfth 16.5 *(26.5)* reverse 3.0 *(4.8)*, 5.1 *(8.2)* **Clutch** multiple wet disc hydraulically power actuated and operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal and mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 276" *(7.01 m)* left 276" *(7.01 m)* **Turning space diameter** (on concrete surface without brake) right 581.5" *(14.77 m)* left 581.5" *(14.77 m)* **Power take-off** 1002 rpm at 2100 engine rpm.

SUPPLEMENTARY TESTS
POWER AND FUEL CONSUMPTION AT 1900 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—907 rpm)								
344.37 *(256.80)*	1900	19.482 *(73.747)*	0.394 *(0.240)*	17.68 *(3.482)*	185 *(84.9)*	65 *(18.5)*	75 *(23.7)*	28.855 *(97.439)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
296.06 *(220.77)*	17947 *(79.83)*	6.19 *(9.96)*	1900	3.83	19.599 *(74.190)*	0.461 *(0.281)*	15.11 *(2.970)*	183 *(83.6)*	67 *(19.4)*	68 *(20.0)*	28.955 *(97.777)*
MAXIMUM POWER IN SELECTED GEARS											
268.21 *(200.01)*	36080 *(160.49)*	2.79 *(4.49)*	1940	14.90		3rd Gear		180 *(81.9)*	61 *(16.1)*	62 *(16.7)*	28.930 *(97.692)*
289.88 *(216.16)*	30619 *(136.20)*	3.55 *(5.71)*	1899	7.95		4th Gear		183 *(83.6)*	64 *(17.8)*	68 *(20.0)*	28.940 *(97.726)*
291.03 *(217.02)*	24970 *(111.07)*	4.37 *(7.03)*	1901	5.68		5th Gear		188 *(86.4)*	74 *(23.3)*	81 *(27.2)*	28.740 *(97.051)*
293.91 *(219.17)*	21017 *(93.49)*	5.24 *(8.44)*	1899	4.19		6th Gear		189 *(86.9)*	73 *(22.8)*	80 *(26.7)*	28.740 *(97.051)*
301.05 *(224.49)*	18186 *(80.90)*	6.21 *(9.99)*	1899	3.54		7th Gear		186 *(85.3)*	70 *(21.1)*	75 *(23.9)*	28.760 *(97.118)*
297.41 *(221.78)*	14864 *(66.12)*	7.50 *(12.08)*	1900	2.81		8th Gear		187 *(86.1)*	71 *(21.7)*	77 *(25.0)*	28.750 *(97.084)*
296.62 *(221.19)*	12462 *(55.43)*	8.93 *(14.36)*	1898	2.23		9th Gear		187 *(85.8)*	72 *(22.2)*	78 *(25.6)*	28.750 *(97.084)*

POWER AND FUEL CONSUMPTION AT 1700 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—812 rpm)								
332.83 *(248.19)*	1700	18.474 *(69.932)*	0.387 *(0.235)*	18.02 *(3.549)*	186 *(85.6)*	65 *(18.1)*	75 *(23.7)*	28.875 *(97.507)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
283.67 *(211.54)*	19287 *(85.79)*	5.52 *(8.88)*	1700	4.23	18.451 *(69.846)*	0.453 *(0.276)*	15.37 *(3.029)*	186 *(85.6)*	68 *(19.7)*	74 *(23.3)*	28.920 *(97.659)*
MAXIMUM POWER IN SELECTED GEARS											
268.55 *(200.26)*	36034 *(160.29)*	2.79 *(4.50)*	1946	14.83		3rd Gear		181 *(82.8)*	62 *(16.7)*	64 *(17.8)*	28.930 *(97.692)*
274.24 *(204.50)*	32898 *(146.34)*	3.13 *(5.03)*	1702	9.40		4th Gear		183 *(83.9)*	66 *(18.9)*	70 *(21.1)*	28.940 *(97.726)*
280.33 *(209.04)*	27087 *(120.49)*	3.88 *(6.25)*	1700	6.22		5th Gear		189 *(87.2)*	74 *(23.3)*	81 *(27.2)*	28.740 *(97.051)*
284.11 *(211.86)*	22825 *(101.53)*	4.67 *(7.51)*	1701	4.82		6th Gear		187 *(86.1)*	73 *(22.8)*	80 *(26.7)*	28.740 *(97.051)*
290.08 *(216.31)*	19626 *(87.30)*	5.54 *(8.92)*	1703	4.03		7th Gear		188 *(86.4)*	70 *(21.1)*	75 *(23.9)*	28.760 *(97.118)*
289.88 *(216.16)*	16226 *(72.17)*	6.70 *(10.78)*	1702	3.22		8th Gear		188 *(86.4)*	71 *(21.7)*	76 *(24.4)*	28.760 *(97.118)*
285.20 *(212.67)*	13427 *(59.72)*	7.97 *(12.82)*	1698	2.36		9th Gear		188 *(86.7)*	72 *(22.2)*	78 *(25.6)*	28.750 *(97.084)*
284.16 *(211.90)*	11033 *(49.08)*	9.66 *(15.54)*	1701	1.90		10th Gear		188 *(86.7)*	72 *(22.2)*	79 *(26.1)*	28.740 *(97.051)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 148°F *(64.3°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1455.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Steiger Panther CP-1360 Diesel

TRACTOR SOUND LEVEL WITH CAB	1700 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	73.5	73.5	74.5
75% of Pull at Maximum Power—Ten Hours			76.0
50% of Pull at Maximum Power—Two Hours			73.5
50% of Pull at Reduced Engine Speed—Two Hours			73.5
Bystander in 12th gear			93.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (*kPa*)	Four 23.1-34; 8; inner 16 (*110*) outer 14 (*95*)	Four 23.1-34; 8; inner 16 (*110*) outer 14 (*95*)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi (*kPa*)	Four 23.1-34; 8; inner 16 (*110*) outer 14 (*95*)	Four 23.1-34; 8; inner 16 (*110*) outer 14 (*95*)
Ballast	—Liquid (each inner)	1930 lb (*875 kg*)	None
	—Cast Iron (each)	None	None
Height of Drawbar		19.5 in (*495 mm*)	19.5 in (*495 mm*)
Static Weight with Operator	—Rear	16540 lb (*7503 kg*)	16540 lb (*7503 kg*)
	Front	22580 lb (*10242 kg*)	18720 lb (*8491 kg*)
	Total	39120 lb (*17745 kg*)	35260 lb (*15994 kg*)

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1456 — STEIGER PANTHER KP-1360 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crankshaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)								
326.12 (243.19)	2100	18.738 (71.007)	0.401 (0.244)	17.39 (3.425)	178 (81.4)	74 (23.1)	74 (23.4)	28.410 (95.936)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
282.76 (210.85)	2142	17.005 (64.371)	0.419 (0.255)	16.63 (3.276)	176 (79.7)	74 (23.1)	75 (23.9)	....
0.00 (0.00)	2272	4.792 (18.140)	....	....	168 (75.8)	74 (23.1)	74 (23.6)	....
144.40 (107.68)	2188	11.210 (42.434)	0.541 (0.329)	12.88 (2.538)	171 (77.2)	74 (23.3)	75 (23.9)	....
325.95 (243.05)	2100	18.747 (70.965)	0.401 (0.244)	17.39 (3.425)	180 (81.9)	74 (23.3)	75 (23.9)	....
73.51 (54.82)	2224	7.863 (29.765)	0.746 (0.454)	9.35 (1.842)	169 (76.1)	74 (23.3)	75 (23.9)	....
211.71 [illegible]	2166	13.955 (52.825)	0.433 (0.276)	15.39 (3.031)	172 (77.8)	72 (22.5)	74 (23.6)	....
Av 173.55 **Av (129.42)**	**2182**	**12.262** **(46.417)**	**0.493** **(0.300)**	**14.15** **(2.788)**	**173** **(78.1)**	**74** **(23.1)**	**75** **(23.8)**	**28.378** **(95.822)**

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
289.10 (215.58)	15622 (69.49)	6.94 (11.17)	2100	2.93	18.712 (70.834)	0.451 (0.275)	15.45 (3.043)	178 (80.8)	57 (13.9)	64 (17.5)	29.005 (97.946)
75% of Pull at Maximum Power—Ten Hours 7th Gear											
227.19 (169.41)	11827 (52.61)	7.20 (11.59)	2162	2.03	15.923 (60.277)	0.489 (0.297)	14.27 (2.811)	175 (79.2)	52 (10.8)	61 (16.2)	28.919 (97.655)
50% of Pull at Maximum Power—Two Hours 7th Gear											
154.34 (115.09)	7885 (35.07)	7.34 (11.81)	2190	1.38	12.708 (48.105)	0.574 (0.349)	12.15 (2.393)	172 (77.8)	44 (6.7)	49 (9.2)	29.085 (98.216)
50% of Pull at Reduced Engine Speed—Two Hours 10th Gear											
154.37 (115.11)	7885 (35.07)	7.34 (11.81)	1280	1.34	10.199 (38.606)	0.461 (0.280)	15.14 (2.982)	173 (78.3)	44 (6.7)	50 (9.7)	29.080 (98.199)
MAXIMUM POWER IN SELECTED GEARS											
251.75 (187.73)	36771 (163.56)	2.57 (4.13)	2110	14.81		2nd Gear		174 (78.6)	38 (3.3)	40 (4.4)	29.200 (98.604)
275.83 (205.68)	31776 (141.34)	3.26 (5.24)	2099	8.48		3rd Gear		175 (79.4)	44 (6.7)	50 (10.0)	29.200 (98.604)
284.09 (211.84)	26472 (117.75)	4.02 (6.48)	2099	5.92		4th Gear		174 (78.6)	50 (10.0)	55 (12.8)	28.970 (97.827)
288.73 (215.31)	22107 (98.34)	4.90 (7.88)	2098	4.43		5th Gear		174 (78.9)	50 (10.0)	55 (12.8)	28.970 (97.827)
289.26 (215.70)	18507 (82.32)	5.86 (9.43)	2099	3.62		6th Gear		175 (79.2)	49 (9.4)	54 (12.2)	28.960 (97.794)
291.14 (217.10)	15769 (70.14)	6.92 (11.14)	2100	2.97		7th Gear		175 (79.4)	50 (10.0)	54 (12.2)	28.990 (97.895)
286.86 (213.92)	12863 (57.22)	8.36 (13.46)	2100	2.47		8th Gear		174 (78.9)	50 (10.0)	54 (12.2)	28.980 (97.861)

LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2100	1885	1678	1464	1258	1046
Pull—lbs (kN)	15769 (70.14)	18900 (84.07)	21686 (96.46)	24235 (107.80)	24120 (107.29)	22038 (98.03)
Increase in Pull %	0	20	38	54	53	40
Power—Hp (kW)	291.14 (217.10)	311.08 (231.98)	315.53 (235.29)	305.52 (227.82)	261.28 (194.84)	199.50 (148.76)
Speed—Mph (km/h)	6.92 (11.14)	6.17 (9.93)	5.46 (8.78)	4.73 (7.61)	4.06 (6.54)	3.39 (5.46)
Slip %	2.97	3.79	4.43	5.22	5.22	4.50

Department of Agricultural Engineering

Dates of Test: October 4 to 19, 1982

Manufacturer: STEIGER TRACTOR, INC., 406 Main Avenue, Fargo, North Dakota 58126

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8376 **Fuel weight** 6.974 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SF **To motor** 8.408 gal *(31.827 l)* **Drained from motor** 7.630 gal *(28.883 l)* **Transmission and hydraulic lubricant** SAE 10 hydraulic transmission fluid **Final drive lubricant** SAE 85W-90 **Total time engine was operated** 71.0 hours.

ENGINE: **Make** Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 11059658 **Crankshaft** lengthwise **Rated rpm** 1700 to 2100 **Bore and stroke** 5.5" × 6.0" *(139.7 mm × 152.4 mm)* **Compression ratio** 14.1 to 1 **Displacement** 855 cu in *(14011 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** four wheel drive with duals **Serial No.** P36000507- **Tread width** rear 79" *(2007 mm)* to 136.4" *(3464 mm)* front 79" *(2007 mm)* to 136.4" *(3464 mm)* **Wheel base** 141.5" *(3594 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 75.5" *(1918 mm)* Vertical distance above roadway 45.4" *(1153 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph (km/h)** first 2.4 *(3.9)* second 2.9 *(4.7)* third 3.4 *(5.5)* fourth 4.1 *(6.6)* fifth 4.9 *(7.9)* sixth 5.8 *(9.3)* seventh 6.8 *(10.9)* eighth 8.2 *(13.2)* ninth 9.6 *(15.4)* tenth 11.6 *(18.7)* eleventh 14.0 *(22.5)* twelfth 16.5 *(26.5)* reverse 3.0 *(4.8)*, 5.1 *(8.2)* **Clutch** multiple wet disc hydraulically power actuated and operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal or mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 276" *(7.01 m)* left 276" *(7.01 m)* **Turning space diameter** (on concrete surface without brake) right 581.5" *(14.77 m)* left 581.5" *(14.77 m)* **Power take-off** 1002 rpm at 2100 engine rpm.

SUPPLEMENTARY TESTS

POWER AND FUEL CONSUMPTION AT 1900 RPM

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crankshaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—907 rpm)								
347.12 (258.85)	1900	18.831 (71.283)	0.378 (0.230)	18.43 (3.631)	180 (82.2)	74 (23.2)	75 (23.9)	28.395 (95.886)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
308.01 (229.68)	18501 (82.30)	6.24 (10.05)	1901	3.42	18.820 (71.241)	0.426 (0.259)	16.37 (3.224)	180 (82.2)	57 (13.9)	69 (20.3)	29.025 (98.013)
MAXIMUM POWER IN SELECTED GEARS											
272.34 (203.09)	36697 (163.24)	2.78 (4.48)	1929	14.81		3rd Gear		175 (79.2)	42 (5.6)	47 (8.3)	29.200 (98.604)
295.65 (220.47)	31135 (138.49)	3.56 (5.73)	1901	8.04		4th Gear		177 (80.3)	48 (8.9)	55 (12.8)	29.200 (98.604)
301.76 (225.02)	25809 (114.80)	4.38 (7.06)	1901	5.53		5th Gear		175 (79.4)	50 (10.0)	55 (12.8)	28.970 (97.827)
305.10 (227.51)	21733 (96.67)	5.26 (8.47)	1901	4.51		6th Gear		175 (79.4)	50 (10.0)	54 (12.2)	28.960 (97.794)
312.41 (232.96)	18826 (83.74)	6.22 (10.02)	1900	3.70		7th Gear		175 (79.4)	50 (10.0)	54 (12.2)	28.980 (97.861)
308.80 (230.27)	15381 (68.42)	7.53 (12.12)	1900	2.81		8th Gear		176 (80.0)	50 (10.0)	54 (12.2)	28.970 (97.827)
304.73 (227.23)	12755 (56.73)	8.96 (14.42)	1899	2.31		9th Gear		175 (79.4)	50 (10.0)	54 (12.2)	28.970 (97.827)

POWER AND FUEL CONSUMPTION AT 1700 RPM

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crankshaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—811 rpm)								
349.67 (260.75)	1700	18.482 (69.962)	0.369 (0.224)	18.92 (3.727)	182 (83.4)	73 (22.9)	75 (23.9)	28.395 (95.886)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
309.59 (230.86)	20929 (93.09)	5.55 (8.93)	1701	4.11	18.730 (70.902)	0.422 (0.257)	16.53 (3.256)	180 (82.2)	57 (13.6)	68 (20.0)	29.045 (98.081)
MAXIMUM POWER IN SELECTED GEARS											
271.94 (202.79)	36621 (162.90)	2.78 (4.48)	1929	14.81		3rd Gear		175 (79.4)	43 (6.1)	49 (9.4)	29.200 (98.604)
288.63 (215.23)	35396 (157.45)	3.06 (4.92)	1700	11.86		4th Gear		176 (80.0)	46 (7.8)	53 (11.7)	29.200 (98.604)
299.46 (223.31)	29077 (129.34)	3.86 (6.22)	1699	7.07		5th Gear		176 (80.0)	50 (10.0)	55 (12.8)	28.970 (97.827)
306.55 (228.60)	24614 (109.49)	4.67 (7.52)	1702	5.22		6th Gear		176 (80.0)	50 (10.0)	54 (12.2)	28.970 (97.827)
316.04 (235.67)	21417 (95.27)	5.53 (8.91)	1700	4.43		7th Gear		176 (79.7)	50 (10.0)	54 (12.2)	28.980 (97.861)
314.70 (234.67)	17587 (78.23)	6.71 (10.80)	1702	3.38		8th Gear		176 (80.0)	50 (10.0)	54 (12.2)	28.970 (97.827)
312.53 (233.05)	14658 (65.20)	8.00 (12.87)	1700	2.64		9th Gear		177 (80.3)	50 (10.0)	54 (12.2)	28.960 (97.794)

REPAIRS and ADJUSTMENTS: During preliminary drawbar tests, the circuit breaker in the transmission control circuit was found to be of the wrong amperage. It was replaced with one of proper amperage and test continued.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 116°F *(46.7°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1456**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Steiger Panther KP-1360 Diesel

TRACTOR SOUND LEVEL WITH CAB	1700 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	74.0	75.5	75.5
75% of Pull at Maximum Power—Ten Hours			76.0
50% of Pull at Maximum Power—Two Hours			74.5
50% of Pull at Reduced Engine Speed—Two Hours			73.0
Bystander in 12th gear			94.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*	Four 23.1-34, 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each inner)	2043 lb *(928 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		19.5 in *(495 mm)*	19.5 in *(495 mm)*
Static Weight with Operator	—Rear	16640 lb *(7548 kg)*	16640 lb *(7548 kg)*
	Front	22930 lb *(10401 kg)*	18840 lb *(8546 kg)*
	Total	39570 lb *(17949 kg)*	35480 lb *(16094 kg)*

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1457
JOHN DEERE 4050 POWERSHIFT DIESEL
15 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)								
100.95 *(75.28)*	2200	6.692 *(25.332)*	0.463 *(0.281)*	15.08 *(2.972)*	186 *(85.7)*	60 *(15.3)*	75 *(23.9)*	29.080 *(98.199)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
87.86 *(65.52)*	2249	6.089 *(23.049)*	0.484 *(0.294)*	14.43 *(2.843)*	183 *(83.9)*	59 *(15.0)*	75 *(23.9)*	…… ……
0.00 *(0.00)*	2353	2.533 *(9.588)*	…… ……	…… ……	171 *(77.2)*	60 *(15.3)*	74 *(23.6)*	…… ……
44.87 *(33.46)*	2298	4.145 *(15.691)*	0.645 *(0.392)*	10.83 *(2.132)*	178 *(80.8)*	58 *(14.7)*	74 *(23.6)*	…… ……
101.32 *(75.55)*	2200	6.665 *(25.230)*	0.459 *(0.279)*	15.20 *(2.994)*	186 *(85.8)*	59 *(15.0)*	75 *(23.9)*	…… ……
22.71 *(16.93)*	2327	3.393 *(12.844)*	1.042 *(0.634)*	6.70 *(1.318)*	174 *(78.6)*	60 *(15.3)*	76 *(24.2)*	…… ……
66.47 *(49.57)*	2260	5.061 *(19.158)*	0.551 *(0.335)*	13.13 *(2.587)*	181 *(82.8)*	60 *(15.8)*	76 *(24.7)*	…… ……
Av 53.87 ***Av (40.17)***	**2283**	**4.647** ***(17.591)***	**0.602** ***(0.366)***	**11.59** ***(2.284)***	**179** ***(81.6)***	**59** ***(15.2)***	**75** ***(24.0)***	**29.055** ***(98.114)***

DRAWBAR PERFORMANCE

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom inch Hg *(kPa)*
Maximum Available Power—Two Hours 10th Gear											
83.95 *(62.60)*	5334 *(23.73)*	5.90 *(9.50)*	2200	4.32	6.665 *(25.229)*	0.554 *(0.337)*	12.60 *(2.481)*	184 *(84.2)*	47 *(8.3)*	58 *(14.2)*	28.850 *(97.422)*
75% of Pull at Maximum Power—Ten Hours 10th Gear											
67.04 *(49.99)*	4132 *(18.38)*	6.08 *(9.79)*	2248	3.41	5.733 *(21.702)*	0.597 *(0.363)*	11.69 *(2.304)*	179 *(81.8)*	51 *(10.5)*	53 *(11.5)*	28.931 *(97.696)*
50% of Pull at Maximum Power—Two Hours 10th Gear											
45.63 *(34.04)*	2755 *(12.25)*	6.22 *(10.02)*	2275	2.32	4.730 *(17.904)*	0.723 *(0.440)*	9.65 *(1.901)*	174 *(78.9)*	43 *(5.8)*	43 *(6.1)*	28.470 *(96.139)*
50% of Pull at Reduced Engine Speed—Two Hours 13th Gear											
45.62 *(34.02)*	2755 *(12.25)*	6.21 *(9.99)*	1389	2.44	3.440 *(13.021)*	0.526 *(0.320)*	13.26 *(2.613)*	175 *(79.2)*	49 *(9.2)*	49 *(9.4)*	28.300 *(95.565)*
MAXIMUM POWER IN SELECTED GEARS											
71.16 *(53.06)*	11058 *(49.19)*	2.41 *(3.88)*	2224	14.61	4th Gear			178 *(81.1)*	34 *(1.1)*	41 *(5.0)*	29.090 *(98.283)*
80.02 *(59.67)*	10695 *(47.57)*	2.81 *(4.52)*	2198	12.73	5th Gear			181 *(82.5)*	34 *(1.1)*	40 *(4.4)*	29.100 *(98.266)*
85.10 *(63.46)*	9653 *(42.94)*	3.31 *(5.32)*	2200	9.42	6th Gear			181 *(82.5)*	35 *(1.7)*	42 *(5.6)*	29.060 *(98.131)*
87.11 *(64.96)*	8370 *(37.23)*	3.90 *(6.28)*	2198	7.16	7th Gear			184 *(84.2)*	38 *(3.3)*	46 *(7.8)*	28.910 *(97.625)*
84.30 *(62.86)*	7124 *(31.69)*	4.44 *(7.14)*	2190	5.78	8th Gear			182 *(83.3)*	37 *(2.8)*	44 *(6.7)*	28.910 *(97.625)*
84.37 *(62.92)*	6135 *(27.29)*	5.16 *(8.30)*	2198	4.95	9th Gear			181 *(82.8)*	35 *(1.7)*	40 *(4.4)*	28.910 *(97.625)*
86.43 *(64.45)*	5509 *(24.51)*	5.88 *(9.47)*	2190	4.43	10th Gear			182 *(83.1)*	34 *(1.1)*	42 *(5.5)*	29.050 *(98.097)*
84.66 *(63.14)*	4650 *(20.68)*	6.83 *(10.99)*	2199	3.85	11th Gear			184 *(84.4)*	43 *(6.0)*	49 *(9.4)*	28.910 *(97.625)*
88.75 *(66.18)*	4226 *(18.80)*	7.88 *(12.67)*	2200	3.41	12th Gear			184 *(84.4)*	43 *(6.1)*	51 *(10.6)*	28.910 *(97.625)*
86.07 *(64.18)*	3287 *(14.62)*	9.82 *(15.81)*	2200	2.59	13th Gear			184 *(84.2)*	45 *(7.2)*	53 *(11.7)*	28.890 *(97.557)*

LUGGING ABILITY IN 10th GEAR

Crankshaft Speed rpm	2199	1980	1761	1543	1318	1104	887
Pull—lbs. *(kN)*	5509 *(24.51)*	6050 *(26.91)*	6515 *(28.98)*	6943 *(30.88)*	7210 *(32.07)*	7310 *(32.52)*	7071 *(31.45)*
Increase in Pull %	0	10	18	26	31	33	28
Power—Hp *(kW)*	86.43 *(64.45)*	85.07 *(63.44)*	81.16 *(60.52)*	75.42 *(56.24)*	66.68 *(49.72)*	56.55 *(42.17)*	43.96 *(32.78)*
Speed—Mph *(km/h)*	5.88 *(9.47)*	5.27 *(8.49)*	4.67 *(7.52)*	4.07 *(6.56)*	3.47 *(5.58)*	2.90 *(4.66)*	2.33 *(3.75)*
Slip %	4.43	4.93	5.36	5.78	6.06	6.20	6.20

Department of Agricultural Engineering

Dates of Test: October 12 to November 11, 1982

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8379 **Fuel weight** 6.977 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 3.853 gal *(14.585 l)* **Drained from motor** 3.722 gal *(14.088 l)* **Transmission and hydraulic lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 48.5 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical **Serial No.** *RG6466D230839* **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 4.57" × 4.75" *(116.0 mm × 120.6 mm)* **Compression ratio** 17.0 to 1 **Displacement** 466 cu in *(7636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prestrainer **Muffler** vertical **Cooling medium temperature control** two thermostats and variable speed fan.

CHASSIS: Type standard with duals **Serial No.** *RW4050P001133* **Tread width** rear 60.0" *(1524 mm)* to 114" *(2890 mm)* front 56" *(1420 mm)* to 82.6" *(2099 mm)* **Wheel base** 106.7" *(2710 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.0" *(762 mm)* Vertical distance above roadway 43.0" *(1092 mm)* Horizontal distance from center of rear wheel tread 0.4" *(10 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph *(km/h)*** first 1.2 *(2.0)* second 1.8 *(2.9)* third 2.1 *(3.4)* fourth 2.7 *(4.4)* fifth 3.1 *(5.1)* sixth 3.6 *(5.7)* seventh 4.1 *(6.6)* eighth 4.6 *(7.4)* ninth 5.3 *(8.5)* tenth 6.0 *(9.7)* eleventh 6.9 *(11.1)* twelfth 8.0 *(12.8)* thirteenth 9.8 *(15.8)* fourteenth 13.4 *(21.6)* fifteenth 16.6 *(26.7)* reverse 1.5 *(2.4)*, 2.2 *(3.5)*, 3.3 *(5.4)*, 5.0 *(8.0)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 146" *(3.7 m)* left 146" *(3.7 m)* (on concrete surface without brake) right 157" *(4.0 m)* left 157" *(4.0 m)* **Turning space diameter** (on concrete surface with brake applied) right 295.8" *(7.51 m)* left 295.8" *(7.51 m)* (on concrete surface without brake) right 326.9" *(8.30 m)* left 326.9" *(8.30 m)* **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITH CAB	2000 RPM dB(A)	2200 RPM dB(A)
Maximum Available Power—Two Hours	74.0	73.5
75% of Pull at Maximum Power—Ten Hours		74.0
50% of Pull at Maximum Power—Two Hours		73.0
50% of Pull at Reduced Engine Speed—Two Hours		70.0
Bystander in 15th gear		88.0

SUPPLEMENTAL TESTS
POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—912 rpm)								
100.83 *(75.19)*	2000	6.338 *(23.992)*	0.459 *(0.267)*	15.91 *(3.134)*	188 *(86.7)*	59 *(15.2)*	76 *(24.2)*	29.075 *(98.182)*

DRAWBAR PERFORMANCE

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom inch Hg *(kPa)*
Maximum Available Power—Two Hours 10th Gear											
84.21 *(62.79)*	5912 *(26.30)*	5.34 *(8.60)*	2000	4.65	6.360 *(24.076)*	0.527 *(0.321)*	13.24 *(2.608)*	186 *(85.3)*	48 *(8.6)*	59 *(14.7)*	28.815 *(97.304)*
MAXIMUM POWER IN SELECTED GEARS											
85.47 *(63.73)*	9133 *(40.62)*	3.51 *(5.65)*	2000	8.17	7th Gear			185 *(84.7)*	40 *(4.4)*	48 *(8.9)*	28.910 *(97.625)*
86.05 *(64.17)*	6051 *(26.91)*	5.33 *(8.58)*	2003	5.00	10th Gear			182 *(83.3)*	33 *(0.6)*	40 *(4.4)*	29.040 *(98.064)*
88.33 *(65.87)*	4640 *(20.64)*	7.14 *(11.49)*	2002	3.70	12th Gear			185 *(85.0)*	44 *(6.7)*	52 *(11.1)*	28.900 *(97.591)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 18.4-34; 6; 12 *(85)*	Four 18.4-34; 6; 12 *(85)*
Ballast	—Liquid (each)	None	None
	—Test Equip. (each)	50 lb *(23 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 10.00-16; 6; 32 *(220)*	Two 10.00-16; 6; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Test Equip. (each)	55 lb *(25 kg)*	None
Height of Drawbar		22.5 in *(570 mm)*	22.5 in *(570 mm)*
Static Weight with Operator—Rear		9370 lb *(4250 kg)*	9170 lb *(4160 kg)*
Front		3660 lb *(1660 kg)*	3550 lb *(1610 kg)*
Total		13030 lb *(5910 kg)*	12720 lb *(5770 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 113°F *(45.0°C)*. Ten gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1457.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

John Deere 4050 Powershift Diesel

NEBRASKA TRACTOR TEST 1458
JOHN DEERE 4250 POWERSHIFT DIESEL
15 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)								
120.86 (90.13)	2200	7.658 (28.989)	0.442 (0.269)	15.78 (3.109)	188 (86.8)	58 (14.7)	76 (24.2)	28.863 (97.467)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
104.22 (77.72)	2234	6.954 (26.324)	0.465 (0.283)	14.99 (2.952)	185 (85.0)	60 (15.6)	76 (24.4)	....
0.00 (0.00)	2334	2.490 (9.460)	....	....	173 (78.3)	60 (15.6)	75 (23.9)	....
53.29 (39.74)	2285	4.670 (17.678)	0.611 (0.372)	11.41 (2.248)	182 (83.1)	60 (15.6)	74 (23.3)	....
121.20 (90.38)	2200	7.706 (29.170)	0.444 (0.270)	15.73 (3.098)	188 (86.9)	59 (15.0)	74 (23.6)	....
26.97 (20.11)	2302	3.569 (13.510)	0.923 (0.562)	7.56 (1.489)	176 (80.0)	59 (15.0)	74 (23.3)	....
70.21 (39.07)	2262	5.831 (22.073)	0.514 (0.312)	13.58 (2.676)	184 (84.4)	61 (16.1)	76 (24.7)	....
Av 64.15 **Av** (47.84)	2270	5.205 (19.703)	0.566 (0.344)	12.33 (2.428)	181 (82.9)	60 (15.4)	75 (23.9)	28.840 (97.388)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
101.39 (75.60)	6065 (26.98)	6.27 (10.09)	2201	4.40	7.544 (28.556)	0.519 (0.316)	13.44 (2.648)	187 (85.8)	42 (5.6)	48 (8.9)	29.320 (99.009)
75% of Pull at Maximum Power—Ten Hours 10th Gear											
80.05 (59.69)	4639 (20.64)	6.47 (10.41)	2233	3.00	6.626 (25.083)	0.577 (0.351)	12.08 (2.380)	184 (84.2)	47 (8.2)	56 (13.3)	29.153 (98.445)
50% of Pull at Maximum Power—Two Hours 10th Gear											
54.47 (40.62)	3092 (13.75)	6.61 (10.63)	2278	2.61	5.358 (20.281)	0.686 (0.417)	10.17 (2.003)	184 (84.2)	49 (9.2)	59 (14.7)	29.185 (98.553)
50% of Pull at Reduced Engine Speed—Two Hours 13th Gear											
54.57 (40.69)	3092 (13.75)	6.62 (10.65)	1394	2.57	3.996 (15.126)	0.511 (0.311)	13.66 (2.690)	179 (81.7)	50 (10.0)	61 (15.8)	29.155 (98.452)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %				Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
87.11 (64.96)	12802 (56.94)	2.55 (4.11)	2227	14.97		4th Gear		183 (83.6)	37 (2.8)	40 (4.4)	29.280 (98.874)
97.15 (72.45)	12167 (54.12)	2.99 (4.82)	2200	12.41		5th Gear		184 (84.4)	40 (4.4)	44 (6.7)	29.280 (98.874)
100.47 (74.92)	10742 (47.78)	3.51 (5.64)	2200	9.62		6th Gear		186 (85.6)	47 (8.3)	55 (12.8)	29.260 (98.807)
102.67 (76.56)	9307 (41.40)	4.14 (6.66)	2199	7.52		7th Gear		186 (85.3)	47 (8.3)	55 (12.8)	29.270 (98.840)
100.86 (75.21)	8039 (35.76)	4.71 (7.57)	2198	5.91		8th Gear		187 (86.1)	46 (7.8)	54 (12.2)	29.280 (98.874)
101.18 (75.45)	6929 (30.82)	5.48 (8.81)	2197	5.09		9th Gear		188 (86.7)	46 (7.8)	54 (12.2)	29.280 (98.874)
103.26 (77.00)	6185 (27.51)	6.26 (10.08)	2199	4.48		10th Gear		187 (86.1)	45 (7.2)	52 (11.1)	29.300 (98.942)
102.24 (76.24)	[illegible] (23.5[illegible])	7.25 (11.67)	2200	3.86		11th Gear		187 (85.6)	47 (8.3)	56 (13.3)	29.260 (98.807)
105.11 (78.38)	4716 (20.98)	8.36 (13.45)	2199	3.55		12th Gear		186 (85.3)	47 (8.3)	56 (13.3)	29.260 (98.807)

LUGGING ABILITY IN 10th GEAR

Crankshaft Speed rpm	2199	1979	1764	1542	1316	1098
Pull—lbs (kN)	6185 (27.51)	7098 (31.57)	7779 (34.60)	8207 (36.51)	8123 (36.13)	7379 (32.82)
Increase in Pull %	0	15	[illegible]	33	31	19
Power—Hp (kW)	103.26 (77.00)	105.50 (78.67)	10[illegible] ([illegible])	94.29 (70.31)	79.76 (59.47)	60.75 (45.30)
Speed—Mph (km/h)	6.26 (10.08)	5.57 (8.97)	4.95 (7.97)	4.31 (6.93)	3.68 (5.93)	3.09 (4.97)
Slip %	4.48	5.09	5.69	6.13	5.99	5.54

Department of Agricultural Engineering

Dates of Test: October 11-26, 1982

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8378 **Fuel weight** 6.976 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 3.797 gal *(14.374 l)* **Drained from motor** 3.689 gal *(13.966 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 45.5 hours.

ENGINE: **Make** John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG6466T230592* **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 4.57" × 4.75" *(116.0 mm × 120.6 mm)* **Compression ratio** 15.8 to 1 **Displacement** 466 cu in *(7636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements with prestrainer **Muffler** vertical **Cooling medium temperature control** two thermostats and variable speed fan.

CHASSIS: **Type** standard with duals **Serial No.** *RW4250P001044* **Tread width** rear 60" *(1524 mm)* to 114" *(2890 mm)* front 56" *(1420 mm)* to 82.6" *(2099 mm)* **Wheel base** 106.7" *(2710 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 29.5" *(749 mm)* Vertical distance above roadway 45.0" *(1143 mm)* Horizontal distance from center of rear wheel tread 0.4" *(10 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph *(km/h)*** first 1.4 *(2.2)* second 2.0 *(3.2)* third 2.3 *(3.7)* fourth 3.0 *(4.8)* fifth 3.4 *(5.5)* sixth 3.9 *(6.3)* seventh 4.5 *(7.2)* eighth 5.0 *(8.1)* ninth 5.8 *(9.3)* tenth 6.6 *(10.6)* eleventh 7.6 *(12.2)* twelfth 8.7 *(14.0)* thirteenth 10.8 *(17.3)* fourteenth 14.7 *(23.6)* fifteenth 18.2 *(29.[illegible])* reverse 1.7 *(2.7)*, 2.4 *(3.9)*, 3.6 *(5.9)*, 5.5 *(8.8)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 146" *(3.7 m)* left 146" *(3.7 m)* (on concrete surface without brake) right 157" *(4.0 m)* left 157" *(4.0 m)* **Turning space diameter** (on concrete surface with brake applied) right 302" *(7.67 m)* left 302" *(7.67 m)* (on concrete surface without brake) right 338" *(8.58 m)* left 338" *(8.58 m)* **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITH CAB	2000 RPM dB(A)	2200 RPM dB(A)
Maximum Available Power—Two Hours	74.0	74.5
75% of Pull at Maximum Power—Ten Hours		74.5
50% of Pull at Maximum Power—Two Hours		74.5
50% of Pull at Reduced Engine Speed—Two Hours		71.5
Bystander in 15th gear		86.0

SUPPLEMENTAL TESTS
POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—911 rpm)								
123.32 (91.96)	2000	7.361 (27.864)	0.416 (0.253)	16.75 (3.300)	189 (87.1)	59 (14.8)	76 (24.4)	28.850 (97.422)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
103.66 (77.30)	6917 (30.77)	5.62 (9.04)	1999	5.09	7.508 (28.420)	0.505 (0.307)	13.81 (2.720)	188 (86.4)	45 (6.9)	51 (10.6)	29.255 (98.790)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %				Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
103.19 (76.95)	10476 (46.60)	3.69 (5.94)	2001	9.14		7th Gear		187 (86.1)	47 (8.3)	55 (12.8)	29.270 (98.840)
104.61 (78.01)	6940 (30.87)	5.65 (9.10)	1999	5.01		10th Gear		188 (86.4)	46 (7.8)	53 (11.7)	29.290 (98.908)
107.71 (80.32)	5340 (23.75)	7.56 (12.17)	2000	3.94		12th Gear		187 (86.1)	47 (8.3)	56 (13.3)	29.250 (98.773)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 18.4-38; 6; 12 *(85)*	Four 18.4-38; 6; 12 *(85)*
Ballast	—Liquid (each inner)	522 lb *(237 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.00-16; 8; 36 *(250)*	Two 11.00-16; 8; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Test Equip. (each)	35 lb *(16 kg)*	None
Height of Drawbar		24.5 in *(623 mm)*	24.5 in *(623 mm)*
Static Weight with Operator	—Rear	11110 lb *(5039 kg)*	10065 lb *(4566 kg)*
	Front	3860 lb *(1751 kg)*	3790 lb *(1719 kg)*
	Total	14970 lb *(6790 kg)*	13855 lb *(6285 kg)*

John Deere 4250 Powershift Diesel

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 114°F *(45.4°C)*. Nine gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1458.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1459
JOHN DEERE 4450 POWERSHIFT DIESEL
15 SPEED

POWER TAKE-OFF PERFORMANCE

	Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)									
	140.43 (104.72)	2200	8.694 (32.910)	0.432 (0.263)	16.15 (3.182)	188 (86.9)	62 (16.8)	73 (22.8)	28.857 (97.377)
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
	122.44 (91.30)	2256	7.945 (30.075)	0.453 (0.275)	15.41 (3.036)	184 (84.2)	60 (15.6)	74 (23.3)	......
	0.00 (0.00)	2334	2.562 (9.698)	.....	.....	170 (76.7)	59 (15.0)	74 (23.3)	......
	62.38 (46.52)	2300	5.181 (19.612)	0.580 (0.353)	12.04 (2.372)	180 (82.2)	59 (15.0)	74 (23.3)	......
	141.95 (105.85)	2200	8.736 (33.069)	0.429 (0.261)	16.25 (3.201)	188 (86.9)	60 (15.6)	74 (23.3)	......
	31.37 (23.39)	2314	3.844 (14.551)	0.855 (0.520)	8.16 (1.607)	173 (78.3)	59 (15.0)	74 (23.3)	......
	92.50 (68.98)	2274	6.561 (24.836)	0.495 (0.301)	14.10 (2.777)	183 (83.9)	59 (15.0)	74 (23.3)	......
Av Av	75.11 (56.01)	2280	5.805 (21.974)	0.539 (0.328)	12.94 (2.549)	180 (82.1)	59 (15.2)	74 (23.3)	28.880 (97.523)

DRAWBAR PERFORMANCE WITH BIAS PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
117.46 (87.59)	7134 (31.73)	6.17 (9.94)	2200	4.10	8.616 (32.616)	0.512 (0.311)	13.63 (2.686)	184 (84.4)	55 (12.5)	61 (15.8)	28.675 (96.831)
75% of Pull at Maximum Power—Ten Hours 10th Gear											
94.34 (70.35)	5457 (24.27)	6.48 (10.43)	2267	3.16	7.499 (28.385)	0.555 (0.337)	12.58 (2.478)	179 (81.5)	33 (0.5)	38 (3.4)	29.150 (98.435)
50% of Pull at Maximum Power—Two Hours 10th Gear											
64.00 (47.73)	3638 (16.18)	6.60 (10.62)	2300	2.12	6.037 (22.852)	0.658 (0.400)	10.60 (2.088)	178 (80.8)	47 (8.1)	54 (11.9)	28.945 (97.743)
50% of Pull at Reduced Engine Speed—Two Hours 13th Gear											
63.86 (47.62)	3638 (16.18)	6.55 (10.59)	1442	2.20	4.586 (17.359)	0.501 (0.305)	13.92 (2.743)	177 (80.3)	43 (5.8)	48 (8.9)	28.980 (97.861)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
100.25 (74.76)	15014 (66.79)	2.50 (4.03)	2251	14.13	4th Gear	179 (81.7)	50 (10.0)	52 (11.1)	28.730 (97.017)
111.19 (82.91)	14361 (63.88)	2.90 (4.67)	2199	11.48	5th Gear	182 (83.1)	52 (11.1)	56 (13.3)	28.710 (96.949)
117.53 (87.64)	13005 (57.85)	3.39 (5.45)	2200	9.02	6th Gear	183 (83.6)	54 (12.2)	59 (15.0)	28.700 (96.916)
118.97 (88.72)	11156 (49.62)	4.00 (6.44)	2201	6.77	7th Gear	185 (84.7)	54 (12.2)	58 (14.4)	28.690 (96.882)
117.28 (87.45)	9449 (42.03)	4.65 (7.49)	2200	5.53	8th Gear	185 (85.0)	54 (12.2)	60 (15.6)	28.690 (96.882)
117.58 (87.68)	8151 (36.26)	5.41 (8.71)	2200	4.56	9th Gear	184 (84.4)	54 (12.2)	60 (15.6)	28.680 (96.848)
119.78 (89.32)	7276 (32.36)	6.17 (9.94)	2201	4.10	10th Gear	184 (84.4)	54 (12.2)	60 (15.6)	28.670 (96.814)
117.04 (87.28)	6132 (27.28)	7.16 (11.52)	2201	3.49	11th Gear	181 (82.8)	44 (6.7)	46 (7.8)	28.900 (97.591)
121.94 (90.93)	5695 (25.33)	8.03 (12.92)	2200	3.18	12th Gear	181 (82.8)	45 (7.2)	48 (8.9)	28.910 (97.625)

Department of Agricultural Engineering

Dates of Test: October 13 to November 4, 1982

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8381 **Fuel weight** 6.978 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 3.664 gal *(13.870 l)* **Drained from motor** 3.468 gal *(13.129 l)* **Transmission and hydraulic lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 70.0 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG6466T230932* **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 4.57" × 4.75" *(116.0 mm × 120.6 mm)* **Compression ratio** 15.8 to 1 **Displacement** 466 cu in *(7636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements with prestrainer **Muffler** vertical **Cooling medium temperature control** two thermostats and variable speed fan.

CHASSIS: Type standard with duals **Serial No.** *RW4450P001406* **Tread width** rear 60.0" *(1524 mm)* to 130" *(3300 mm)* front 58" *(1470 mm)* to 82.6" *(2099 mm)* **Wheel base** 106.7" *(2710 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 28.0" *(711 mm)* Vertical distance above roadway 41.9" *(1064 mm)* Horizontal distance from center of rear wheel tread 0.5" *(13 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph (km/h)** first 1.4 *(2.2)* second 2.0 *(3.2)* third 2.3 *(3.7)* fourth 3.0 *(4.8)* fifth 3.4 *(5.5)* sixth 3.9 *(6.3)* seventh 4.5 *(7.2)* eighth 5.0 *(8.1)* ninth 5.8 *(9.3)* tenth 6.6 *(10.6)* eleventh 7.6 *(12.2)* twelfth 8.7 *(14.0)* thirteenth 10.8 *(17.3)* fourteenth 14.7 *(23.6)* fifteenth 18.2 *(29.3)* reverse 1.7 *(2.7)*, 2.4 *(3.9)*, 3.6 *(5.9)*, 5.5 *(8.8)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 146" *(3.7 m)* left 146" *(3.7 m)* (on concrete surface without brake) right 157" *(4.0 m)* left 157" *(4.0 m)* **Turning space diameter** (on concrete surface with brake applied) right 302" *(7.67 m)* left 302" *(7.67 m)* (on concrete surface without brake) right 338" *(8.58 m)* left 338" *(8.58 m)* **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

SUPPLEMENTAL TESTS
DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES
POWER AND FUEL CONSUMPTION AT 2200 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
118.71 (88.52)	6737 (29.97)	6.61 (10.63)	2200	2.53	8.688 (32.888)	0.511 (0.311)	13.66 (2.692)	189 (87.2)	53 (11.7)	66 (18.9)	28.900 (97.591)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
94.39 (70.39)	16154 (71.85)	2.19 (3.53)	2267	10.59	3rd Gear	182 (83.1)	49 (9.4)	57 (13.9)	28.630 (96.679)
115.13 (85.85)	15916 (70.80)	2.71 (4.37)	2201	9.33	4th Gear	184 (84.2)	49 (9.4)	57 (13.9)	28.640 (96.713)
118.62 (88.45)	13760 (61.21)	3.23 (5.20)	2201	6.07	5th Gear	185 (84.7)	50 (10.0)	58 (14.4)	28.620 (96.645)
121.14 (90.33)	12210 (54.31)	3.72 (5.99)	2199	4.99	6th Gear	189 (87.2)	60 (15.6)	71 (21.7)	28.530 (96.342)
122.09 (91.05)	10578 (47.05)	4.33 (6.97)	2199	4.04	7th Gear	189 (87.2)	59 (15.0)	69 (20.6)	28.540 (96.375)
119.75 (89.29)	8956 (39.84)	5.01 (8.07)	2200	3.07	8th Gear	190 (87.5)	57 (13.9)	67 (19.4)	28.560 (96.443)
119.40 (89.03)	7704 (34.27)	5.81 (9.35)	2200	2.74	9th Gear	190 (87.8)	56 (13.3)	67 (19.4)	28.570 (96.477)
120.27 (89.68)	6837 (30.41)	6.60 (10.62)	2199	2.41	10th Gear	189 (87.2)	56 (13.3)	67 (19.4)	28.580 (96.510)
118.67 (88.49)	5826 (25.91)	7.64 (12.29)	2199	2.08	11th Gear	191 (88.1)	60 (15.6)	71 (21.7)	28.530 (96.342)
122.51 (91.36)	5355 (23.82)	8.58 (13.81)	2200	1.91	12th Gear	191 (88.3)	60 (15.6)	71 (21.7)	28.520 (96.308)

LUGGING ABILITY IN 10th GEAR

Crankshaft Speed rpm	2199	1980	1761	1537	1321	1110
Pull—lbs (kN)	6837 (30.41)	7893 (35.11)	8500 (37.81)	8884 (39.52)	9007 (40.07)	8070 (35.90)
Increase in Pull %	0	15	24	30	32	18
Power—Hp (kW)	120.27 (89.68)	124.40 (92.77)	118.91 (88.67)	108.25 (80.72)	94.28 (70.30)	71.22 (53.11)
Speed—Mph (km/h)	6.60 (10.62)	5.91 (9.51)	5.25 (8.44)	4.57 (7.35)	3.93 (6.32)	3.31 (5.33)
Slip %	2.41	2.91	3.07	3.23	3.30	3.07

POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—911 rpm)								
144.35 (107.64)	2000	8.497 (32.165)	0.411 (0.250)	16.99 (3.346)	189 (87.2)	61 (16.3)	75 (23.7)	28.855 (97.439)

DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
124.03 (92.49)	7774 (34.58)	5.98 (9.63)	2001	2.86	8.527 (32.277)	0.480 (0.292)	14.55 (2.865)	190 (87.5)	53 (11.7)	62 (16.4)	29.025 (98.283)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
125.59 (93.65)	12047 (53.59)	3.91 (6.29)	2005	4.75	7th Gear	192 (88.6)	59 (15.0)	70 (21.1)	28.540 (96.375)
125.42 (93.52)	7852 (34.93)	5.99 (9.64)	2001	2.74	10th Gear	190 (87.8)	56 (13.3)	67 (19.4)	28.570 (96.477)
128.10 (95.52)	6173 (27.46)	7.78 (12.52)	1999	2.08	12th Gear	192 (88.6)	60 (15.6)	71 (21.7)	28.520 (96.308)

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 122°F *(50.0°C)*. Nine gears were chosen between stability limit and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1459.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 4450 Powershift Diesel

LUGGING ABILITY IN 10th GEAR

Crankshaft Speed rpm	2201	1982	1765	1540	1323	1099
Pull—lbs *(kN)*	7276 *(32.36)*	8374 *(37.25)*	9125 *(40.59)*	9401 *(41.82)*	9130 *(40.61)*	8594 *(38.23)*
Increase in Pull %	0	15	25	29	25	18
Power—Hp *(kW)*	119.78 *(89.32)*	123.44 *(92.05)*	119.11 *(88.82)*	106.85 *(79.68)*	89.08 *(66.43)*	70.05 *(52.23)*
Speed—Mph *(km/h)*	6.17 *(9.94)*	5.53 *(8.90)*	4.89 *(7.88)*	4.26 *(6.86)*	3.66 *(5.89)*	3.06 *(4.92)*
Slip %	4.10	4.63	5.23	5.38	5.38	4.93

TRACTOR SOUND LEVEL WITH CAB	Radial Ply 2000 RPM dB(A)	Radial Ply 2200 RPM dB(A)	Bias Ply 2200 RPM dB(A)
Maximum Available Power—Two Hours	74.5	74.5	74.0
75% of Pull at Maximum Power—Ten Hours			74.0
50% of Pull at Maximum Power—Two Hours			74.0
50% of Pull at Reduced Engine Speed—Two Hours			72.0
Bystander in 15th gear			86.0

TIRES, BALLAST AND WEIGHT		Bias Ply Tires With Ballast	Bias Ply Tires Without Ballast	Radial Ply Tires With Ballast	Radial Ply Tires Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 18.4-38; 6; 14 *(95)*	Four 18.4-38; 6; 14 *(95)*	Inner Two 18.4R38; 8; 12 *(85)* Outer Two 18.4R38; 6; 12 *(85)*	Inner Two 18.4R38; 8; 12 *(85)* Outer Two 18.4R38; 6; 12 *(85)*
Ballast	—Liquid (each inner)	858 lb *(389 kg)*	None	572 lb *(260 kg)*	None
	—Cast Iron (each)	None	None	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.00-16; 8; 40 *(275)*	Two 11.00-16; 8; 40 *(275)*	Two 11.00-16; 8; 40 *(275)*	Two 11.00-16; 8; 40 *(275)*
Ballast	—Liquid (each)	None	None	None	None
	—Test Equip. (each)	40 lb *(18 kg)*	None	40 lb *(18 kg)*	None
Height of Drawbar		22 in *(560 mm)*	22 in *(560 mm)*	20.5 in *(520 mm)*	20.5 in *(520 mm)*
Static Weight with Operator	—Rear	12875 lb *(5840 kg)*	11160 lb *(5062 kg)*	12745 lb *(5781 kg)*	11600 lb *(5262 kg)*
	Front	3870 lb *(1755 kg)*	3790 lb *(1719 kg)*	3880 lb *(1760 kg)*	3800 lb *(1724 kg)*
	Total	16745 lb *(7595 kg)*	14950 lb *(6781 kg)*	16625 lb *(7541 kg)*	15400 lb *(6985 kg)*

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1460
JOHN DEERE 4650 POWERSHIFT DIESEL
15 SPEED

POWER TAKE-OFF PERFORMANCE

	Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed—Two Hours (PTO Speed—998 rpm)									
	165.52 (123.43)	2200	9.761 (36.949)	0.411 (0.250)	16.96 (3.341)	184 (84.6)	61 (15.9)	73 (22.8)	28.990 (97.895)
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
	143.77 (107.21)	2249	8.819 (33.384)	0.428 (0.260)	16.30 (3.211)	181 (82.8)	62 (16.4)	76 (24.2)	......
	0.00 (0.00)	2338	2.601 (9.846)	.....	.....	167 (75.0)	60 (15.6)	74 (23.6)	......
	73.44 (54.76)	2297	5.676 (21.486)	0.539 (0.328)	12.94 (2.549)	176 (80.3)	60 (15.6)	74 (23.3)	......
	165.38 (123.32)	2200	9.799 (37.093)	0.413 (0.252)	16.88 (3.325)	186 (85.3)	62 (16.4)	76 (24.4)	......
	37.04 (27.62)	2316	4.132 (15.641)	0.778 (0.474)	8.96 (1.766)	170 (76.7)	62 (16.4)	76 (24.2)	......
	108.94 (81.24)	2271	7.340 (27.785)	0.470 (0.286)	14.84 (2.924)	180 (81.9)	60 (15.6)	74 (23.6)	......
Av Av	88.10 (65.70)	2279	6.385 (24.308)	0.506 (0.306)	13.78 (2.714)	177 (80.3)	61 (16.1)	75 (23.9)	28.985 (97.872)

DRAWBAR PERFORMANCE WITH BIAS PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
137.31 (102.39)	8250 (36.70)	6.24 (10.05)	2200	4.12	9.639 (36.487)	0.490 (0.298)	14.25 (2.806)	187 (85.8)	65 (18.3)	74 (23.3)	28.760 (97.118)
75% of Pull at Maximum Power—Ten Hours 10th Gear											
109.42 (81.60)	6345 (28.22)	6.47 (10.41)	2266	3.49	8.324 (31.509)	0.531 (0.323)	15.15 (2.990)	178 (80.8)	41 (5.1)	42 (5.6)	28.834 (97.368)
50% of Pull at Maximum Power—Two Hours 10th Gear											
74.57 (55.61)	4231 (18.82)	6.61 (10.64)	2290	2.43	6.593 (24.958)	0.617 (0.375)	11.31 (2.228)	175 (79.4)	33 (0.6)	36 (1.9)	29.210 (98.638)
50% of Pull at Reduced Engine Speed—Two Hours 15th Gear											
74.79 (55.77)	4231 (18.82)	6.63 (10.67)	1457	2.43	5.214 (19.735)	0.486 (0.296)	14.35 (2.826)	175 (79.2)	36 (2.2)	41 (5.0)	29.235 (98.722)
MAXIMUM POWER IN SELECTED GEARS											
127.27 (94.91)	16746 (74.49)	2.85 (4.59)	2222	14.78	5th Gear			181 (82.5)	39 (3.9)	45 (7.2)	29.230 (98.705)
136.66 (101.91)	15138 (67.34)	3.39 (5.45)	2200	10.05	6th Gear			184 (84.4)	62 (16.7)	70 (21.1)	28.770 (97.152)
141.05 (105.16)	13171 (58.59)	4.02 (6.46)	2199	7.41	7th Gear			185 (85.0)	61 (16.1)	68 (20.0)	28.780 (97.186)
138.12 (103.00)	11040 (49.11)	4.69 (7.55)	2201	5.72	8th Gear			185 (85.0)	60 (15.6)	66 (18.9)	28.780 (97.186)
137.98 (102.89)	9472 (42.13)	5.46 (8.79)	2202	4.85	9th Gear			184 (84.4)	58 (14.4)	64 (17.8)	28.780 (97.186)
140.62 (104.86)	8460 (37.63)	6.23 (10.03)	2200	4.04	10th Gear			182 (83.3)	55 (12.8)	60 (15.6)	28.790 (97.220)
139.47 (104.00)	7220 (32.12)	7.24 (11.66)	2198	3.47	11th Gear			185 (85.0)	63 (17.2)	71 (21.7)	28.770 (97.152)
143.33 (106.88)	6621 (29.45)	8.12 (13.06)	2200	3.22	12th Gear			185 (84.7)	64 (17.8)	73 (22.8)	28.770 (97.152)

Department of Agricultural Engineering

Dates of Test: October 9-28, 1982

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8379 **Fuel weight** 6.977 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 4.601 gal *(17.415 l)* **Drained from motor** 4.253 gal *(16.099 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 60.5 hours.

ENGINE: **Make** John Deere Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** *RG6466A231034* **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 4.57" × 4.75" *(116.0 mm × 120.6 mm)* **Compression ratio** 15.8 to 1 **Displacement** 466 cu in *(7636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements with prestrainer **Muffler** vertical **Cooling medium temperature control** three thermostats and variable speed fan.

CHASSIS: **Type** standard with duals **Serial No.** *RW4650P001183* **Tread width** rear 63" *(1600 mm)* to 130" *(3300 mm)* front 60.2" *(1530 mm)* to 86.3" *(2192 mm)* **Wheel base** 118.5" *(3010 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 31.5" *(800 mm)* Vertical distance above roadway 45.3" *(1151 mm)* Horizontal distance from center of rear wheel tread 0.3" *(8 mm)* to the right **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph *(km/h)*** first 1.3 *(2.1)* second 1.9 *(3.1)* third 2.3 *(3.7)* fourth 2.9 *(4.7)* fifth 3.3 *(5.3)* sixth 3.8 *(6.1)* seventh 4.3 *(7.0)* eighth 5.0 *(8.0)* ninth 5.7 *(9.2)* tenth 6.5 *(10.5)* eleventh 7.5 *(12.0)* twelfth 8.4 *(13.5)* thirteenth 10.4 *(16.7)* fourteenth 14.5 *(23.4)* fifteenth 18.0 *(29.0)* reverse 1.8 *(2.9)*, 2.6 *(4.2)*, 4.0 *(6.4)*, 6.0 *(9.7)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 165" *(4.2 m)* left 165" *(4.2 m)* (on concrete surface without brake) right 181" *(4.6 m)* left 181" *(4.6 m)* **Turning space diameter** (on concrete surface with brake applied) right 346" *(8.79 m)* left 346" *(8.79 m)* (on concrete surface without brake) right 380" *(9.65 m)* left 380" *(9.65 m)* **Power take-off** 998 rpm at 2200 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

SUPPLEMENTAL TESTS
DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES

POWER AND FUEL CONSUMPTION AT 2200 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
140.48 (104.76)	8052 (35.82)	6.54 (10.53)	2201	1.90	9.728 (36.826)	0.483 (0.294)	14.44 (2.845)	182 (83.3)	49 (9.4)	59 (14.7)	29.115 (98.317)
MAXIMUM POWER IN SELECTED GEARS											
127.06 (94.75)	18794 (83.60)	2.54 (4.08)	2221	14.64	4th Gear			179 (81.4)	43 (6.1)	50 (10.0)	29.050 (98.097)
142.05 (105.93)	16586 (73.78)	3.21 (5.17)	2190	5.30	5th Gear			183 (83.9)	56 (13.3)	70 (21.1)	29.060 (98.131)
145.80 (108.73)	14787 (65.77)	3.70 (5.95)	2202	4.15	6th Gear			185 (85.0)	57 (13.9)	70 (21.1)	29.060 (98.131)
145.69 (108.64)	12723 (56.59)	4.29 (6.91)	2200	3.14	7th Gear			186 (85.6)	57 (13.9)	70 (21.1)	29.060 (98.131)
141.88 (105.80)	10650 (47.38)	4.97 (8.00)	2201	2.46	8th Gear			186 (85.3)	57 (13.9)	70 (21.1)	29.070 (98.165)
141.47 (105.49)	9232 (41.06)	5.75 (9.25)	2199	2.03	9th Gear			185 (85.0)	57 (13.9)	69 (20.6)	29.080 (98.199)
143.07 (106.68)	8205 (36.50)	6.54 (10.52)	2199	1.86	10th Gear			184 (84.4)	54 (12.2)	65 (18.3)	29.110 (98.300)
140.74 (104.95)	6980 (31.05)	7.56 (12.17)	2200	1.51	11th Gear			185 (85.0)	56 (13.3)	70 (21.1)	29.060 (98.131)
146.06 (108.92)	6465 (28.76)	8.47 (13.64)	2200	1.42	12th Gear			185 (84.7)	56 (13.3)	70 (21.1)	29.060 (98.131)

LUGGING ABILITY IN 10th GEAR

Crankshaft Speed rpm	2199	1981	1762	1535	1323	1092
Pull—lbs (kN)	8205 (36.50)	9252 (41.15)	10072 (44.80)	10604 (47.17)	10227 (45.49)	8657 (38.51)
Increase in Pull %	0	13	23	29	25	6
Power—Hp (kW)	143.07 (106.68)	144.90 (108.05)	140.04 (104.43)	128.20 (95.60)	106.61 (79.50)	74.74 (55.73)
Speed—Mph (km/h)	6.54 (10.52)	5.87 (9.45)	5.21 (8.39)	4.53 (7.30)	3.91 (6.29)	3.24 (5.21)
Slip %	1.86	2.12	2.29	2.46	2.46	2.12

POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—907 rpm)								
168.59 (125.72)	2000	9.420 (35.659)	0.390 (0.237)	17.90 (3.536)	183 (83.7)	61 (15.9)	75 (23.8)	28.985 (97.878)

DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
144.10 (107.46)	9121 (40.57)	5.93 (9.54)	2001	2.25	9.531 (36.080)	0.461 (0.281)	15.12 (2.978)	182 (83.1)	47 (8.1)	54 (12.2)	29.020 (97.996)
MAXIMUM POWER IN SELECTED GEARS											
147.50 (109.99)	14250 (63.39)	3.88 (6.25)	2000	3.57	7th Gear			186 (85.6)	57 (13.9)	70 (21.1)	29.060 (98.131)
145.22 (108.29)	9185 (40.85)	5.93 (9.54)	1999	1.94	10th Gear			186 (85.3)	56 (13.3)	68 (20.0)	29.080 (98.199)
148.86 (111.00)	7265 (32.32)	7.68 (12.37)	2000	1.60	12th Gear			184 (84.4)	56 (13.3)	70 (21.1)	29.060 (98.131)

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 120°F *(48.6°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1460.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 4650 Powershift Diesel

LUGGING ABILITY IN 10th GEAR						
Crankshaft Speed rpm	2200	1986	1765	1543	1312	1096
Pull—lbs *(kN)*	8460 *(37.63)*	9532 *(42.40)*	10375 *(46.15)*	11066 *(49.22)*	10792 *(48.01)*	9081 *(40.39)*
Increase in Pull %	0	13	23	31	28	7
Power—Hp *(kW)*	140.62 *(104.86)*	141.88 *(105.80)*	136.62 *(101.88)*	126.93 *(94.65)*	105.31 *(78.53)*	74.86 *(55.82)*
Speed—Mph *(km/h)*	6.23 *(10.03)*	5.58 *(8.98)*	4.94 *(7.95)*	4.30 *(6.92)*	3.66 *(5.89)*	3.09 *(4.98)*
Slip %	4.04	4.85	5.32	5.64	5.64	4.53

TRACTOR SOUND LEVEL WITH CAB	Radial Ply 2000 RPM dB(A)	Radial Ply 2200 RPM dB(A)	Bias Ply 2200 RPM dB(A)
Maximum Available Power—Two Hours	75.5	76.5	76.5
75% of Pull at Maximum Power—Ten Hours			76.0
50% of Pull at Maximum Power—Two Hours			77.0
50% of Pull at Reduced Engine Speed—Two Hours			73.5
Bystander in 15th gear			88.0

TIRES, BALLAST AND WEIGHT		Bias Ply Tires With Ballast	Bias Ply Tires Without Ballast	Radial Ply Tires With Ballast	Radial Ply Tires Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 20.8-38; 10; 14 *(95)*	Four 20.8-38; 10; 14 *(95)*	Four 20.8R38; 10; 12 *(85)*	Four 20.8R38; 10; 12 *(85)*
Ballast	—Liquid (each inner)	500 lb *(227 kg)*	None	310 lb *(141 kg)*	None
	—Cast Iron (each)	None	None	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 14L-16.1; 10; 44 *(305)*	Two 14L-16.1; 10; 44 *(305)*	Two 14L-16.1; 10; 44 *(305)*	Two 14L-16.1; 10; 44 *(305)*
Ballast	—Liquid (each)	None	None	None	None
	—Test Equip. (each)	38 lb *(17 kg)*	None	38 lb *(17 kg)*	None
Height of Drawbar		24.5 in *(620 mm)*	24.5 in *(620 mm)*	24.5 in *(620 mm)*	24.5 in *(620 mm)*
Static Weight with Operator	—Rear	14650 lb *(6645 kg)*	13650 lb *(6192 kg)*	14710 lb *(6672 kg)*	14090 lb *(6391 kg)*
	Front	5010 lb *(2273 kg)*	4935 lb *(2239 kg)*	5030 lb *(2282 kg)*	4955 lb *(2248 kg)*
	Total	19660 lb *(8918 kg)*	18585 lb *(8430 kg)*	19740 lb *(8954 kg)*	19045 lb *(8639 kg)*

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1461
JOHN DEERE 4850 POWERSHIFT DIESEL
15 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—998 rpm)								
192.99 (143.91)	2200	11.046 (41.814)	0.399 (0.243)	17.47 (3.442)	194 (90.1)	59 (15.1)	75 (23.7)	29.223 (98.683)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
166.58 (124.22)	2233	9.883 (37.411)	0.414 (0.252)	16.86 (3.320)	188 (86.7)	58 (14.2)	72 (21.9)	......
0.00 (0.00)	2333	2.579 (9.763)	......	......	172 (77.5)	57 (13.9)	71 (21.7)	......
85.18 (63.52)	2288	6.211 (23.511)	0.509 (0.310)	13.71 (2.702)	183 (83.9)	60 (15.3)	74 (23.6)	......
191.94 (143.13)	2199	11.059 (41.787)	0.401 (0.244)	17.39 (3.425)	196 (91.1)	60 (15.8)	76 (24.4)	......
43.00 (32.07)	2302	4.518 (17.102)	0.733 (0.446)	9.52 (1.875)	176 (80.3)	62 (16.4)	76 (24.2)	......
126.56 (94.38)	2263	8.068 (30.541)	0.445 (0.271)	15.69 (3.090)	185 (85.0)	60 (15.3)	74 (23.1)	......
Av 102.21 **Av (76.22)**	**2270**	**7.050** **(26.687)**	**0.481** **(0.293)**	**14.50** **(2.856)**	**183** **(84.1)**	**59** **(15.2)**	**74** **(23.2)**	**29.240** **(98.739)**

DRAWBAR PERFORMANCE WITH BIAS PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
162.53 (121.20)	9875 (43.92)	6.17 (9.93)	2199	4.54	11.069 (41.900)	0.475 (0.289)	14.68 (2.892)	188 (86.7)	49 (9.4)	56 (13.1)	28.690 (96.882)
75% of Pull at Maximum Power—Ten Hours 10th Gear											
127.90 (95.37)	7496 (33.34)	6.40 (10.30)	2249	3.31	9.267 (35.080)	0.506 (0.308)	13.80 (2.719)	183 (83.6)	49 (9.6)	58 (14.2)	28.762 (97.125)
50% of Pull at Maximum Power—Two Hours 10th Gear											
87.52 (65.26)	4998 (22.23)	6.57 (10.57)	2287	2.26	7.290 (27.595)	0.581 (0.354)	12.01 (2.365)	176 (79.7)	38 (3.1)	42 (5.3)	28.805 (97.270)
50% of Pull at Reduced Engine Speed—Two Hours 13th Gear											
87.54 (65.28)	4997 (22.23)	6.57 (10.57)	1434	2.26	5.857 (22.171)	0.467 (0.284)	14.95 (2.944)	179 (81.4)	43 (6.9)	53 (11.7)	28.805 (97.270)
MAXIMUM POWER IN SELECTED GEARS											
142.44 (106.22)	18709 (83.58)	2.84 (4.58)	2231	14.95	5th Gear			184 (84.4)	47 (8.3)	50 (10.0)	28.680 (96.848)
158.79 (118.41)	17935 (79.78)	3.32 (5.34)	2200	11.18	6th Gear			184 (84.4)	48 (8.9)	51 (10.6)	28.690 (96.882)
165.73 (123.58)	15745 (70.04)	3.95 (6.35)	2200	8.26	7th Gear			188 (86.7)	48 (8.9)	52 (11.1)	28.700 (96.916)
162.86 (121.44)	13168 (58.57)	4.64 (7.46)	2199	6.22	8th Gear			191 (88.3)	51 (10.6)	60 (15.6)	28.640 (96.713)
163.35 (121.81)	11342 (50.45)	5.40 (8.69)	2199	5.21	9th Gear			192 (88.6)	51 (10.6)	59 (15.0)	28.650 (96.747)
164.65 (122.78)	9994 (44.45)	6.18 (9.94)	2200	4.42	10th Gear			188 (86.4)	49 (9.4)	57 (13.9)	28.670 (96.814)
165.23 (123.21)	8664 (38.54)	7.15 (11.51)	2197	3.94	11th Gear			190 (87.8)	51 (10.6)	61 (16.1)	28.640 (96.713)
171.27 (127.72)	7988 (35.53)	8.04 (12.94)	2198	3.53	12th Gear			191 (88.3)	51 (10.6)	61 (16.1)	28.640 (96.713)

Department of Agricultural Engineering

Dates of Test: October 11 to November 11, 1982

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8382 **Fuel weight** 6.979 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 4.759 gal *(18.014 l)* **Drained from motor** 4.211 gal *(15.941 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 67.5 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** *RG6466A231046* **Crankshaft** lengthwise **Rated rpm** 1700 to 2200 **Bore and stroke** 4.57" × 4.75" *(116.0 mm × 120.6 mm)* **Compression ratio** 15.0 to 1 **Displacement** 466 cu in *(7636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements with prestrainer **Muffler** vertical **Cooling medium temperature control** three thermostats and variable speed fan.

CHASSIS: Type standard with duals **Serial No.** *RW4850P001113* **Tread width** rear 63" *(1600 mm)* to 130" *(3300 mm)* front 60.2" *(1530 mm)* to 86.3" *(2192 mm)* **Wheel base** 118.5" *(3010 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 31.9" *(810 mm)* Vertical distance above roadway 45.3" *(1151 mm)* Horizontal distance from center of rear wheel tread 0.3" *(8 mm)* to the right **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph (km/h)** first 1.3 *(2.1)* second 1.9 *(3.1)* third 2.3 *(3.7)* fourth 2.9 *(4.7)* fifth 3.3 *(5.3)* sixth 3.8 *(6.1)* seventh 4.3 *(7.0)* eighth 5.0 *(8.0)* ninth 5.7 *(9.2)* tenth 6.5 *(10.5)* eleventh 7.5 *(12.0)* twelfth 8.4 *(13.5)* thirteenth 10.4 *(16.7)* fourteenth 14.5 *(23.4)* fifteenth 18.0 *(29.0)* reverse 1.8 *(2.9)*, 2.6 *(4.2)*, 4.0 *(6.4)*, 6.0 *(9.7)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 165" *(4.2 m)* left 165" *(4.2 m)* (on concrete surface without brake) right 181" *(4.6 m)* left 181" *(4.6 m)* **Turning space diameter** (on concrete surface with brake applied) right 346" *(8.79 m)* left 346" *(8.79 m)* (on concrete surface without brake) right 380" *(9.65 m)* left 380" *(9.65 m)* **Power take-off** 998 rpm at 2200 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

SUPPLEMENTAL TESTS
DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES

POWER AND FUEL CONSUMPTION AT 2200 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
164.73 (122.84)	9482 (42.18)	6.52 (10.49)	2201	2.20	11.033 (41.765)	0.467 (0.284)	14.95 (2.941)	185 (85.0)	42 (5.3)	44 (6.4)	29.005 (97.946)
MAXIMUM POWER IN SELECTED GEARS											
149.37 (111.38)	20810 (92.57)	2.69 (4.33)	2236	10.00	4th Gear			182 (83.1)	40 (4.4)	41 (5.0)	28.980 (97.861)
161.81 (120.66)	19252 (85.63)	3.15 (5.07)	2200	7.07	5th Gear			183 (83.9)	40 (4.4)	42 (5.6)	28.990 (97.895)
171.05 (127.56)	17568 (78.15)	3.65 (5.88)	2200	5.08	6th Gear			183 (83.9)	39 (3.9)	41 (5.0)	29.010 (97.962)
172.60 (128.71)	15179 (67.52)	4.26 (6.86)	2199	3.68	7th Gear			185 (84.7)	39 (3.9)	41 (5.0)	29.000 (97.929)
166.57 (124.21)	12634 (56.20)	4.94 (7.96)	2198	2.93	8th Gear			187 (86.1)	39 (3.9)	41 (5.0)	29.000 (97.929)
165.25 (123.23)	10810 (48.09)	5.73 (9.23)	2200	2.33	9th Gear			186 (85.3)	39 (3.9)	42 (5.6)	29.010 (97.962)
167.10 (124.61)	9607 (42.73)	6.52 (10.50)	2200	1.99	10th Gear			187 (85.8)	38 (3.3)	41 (5.0)	29.010 (97.962)
166.11 (123.87)	8258 (36.73)	7.54 (12.14)	2202	1.73	11th Gear			188 (86.4)	38 (3.3)	41 (5.0)	29.000 (97.929)
171.85 (128.15)	7630 (33.94)	8.45 (13.59)	2200	1.55	12th Gear			186 (85.6)	38 (3.3)	41 (5.0)	29.000 (97.929)

LUGGING ABILITY IN 10th GEAR

Crankshaft Speed rpm	2200	1984	1761	1538	1311	1108
Pull—lbs (kN)	9607 (42.73)	11119 (49.46)	12336 (54.87)	13055 (58.08)	11844 (52.68)	10234 (45.52)
Increase in Pull %	0	16	28	36	23	7
Power—Hp (kW)	167.10 (124.61)	173.77 (129.58)	170.57 (127.19)	157.34 (117.33)	122.02 (90.99)	89.46 (66.71)
Speed—Mph (km/h)	6.52 (10.50)	5.86 (9.43)	5.19 (8.34)	4.52 (7.27)	3.86 (6.22)	3.28 (5.28)
Slip %	1.99	2.33	2.67	3.01	2.67	2.16

POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—907 rpm)								
199.94 (149.10)	2000	10.943 (41.424)	0.382 (0.232)	18.27 (3.599)	195 (90.7)	59 (15.2)	75 (23.8)	29.225 (98.688)

DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
172.11 (128.34)	10942 (48.67)	5.90 (9.49)	1999	2.59	11.033 (41.765)	0.447 (0.272)	15.60 (3.073)	189 (86.9)	43 (6.1)	47 (8.1)	28.970 (97.827)
MAXIMUM POWER IN SELECTED GEARS											
177.70 (132.51)	17411 (77.45)	3.83 (6.16)	1997	4.92	7th Gear			186 (85.3)	39 (3.9)	41 (5.0)	29.000 (97.929)
174.42 (130.06)	11074 (49.26)	5.91 (9.51)	1999	2.42	10th Gear			187 (86.1)	38 (3.3)	41 (5.0)	29.000 (97.929)
179.63 (133.95)	8787 (39.08)	7.67 (12.34)	2002	1.81	12th Gear			187 (86.1)	38 (3.3)	41 (5.0)	29.000 (97.929)

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 125°F *(51.7°C)*. Eight gears were chosen between 15% slip (bias ply tires), stability limit (radial ply tires) and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1461.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 4850 Powershift Diesel

LUGGING ABILITY IN 10th GEAR						
Crankshaft Speed rpm	2200	1983	1760	1538	1322	1105
Pull—lbs (kN)	9994 (44.45)	11432 (50.85)	12617 (56.12)	13213 (58.77)	12568 (55.91)	10413 (46.32)
Increase in Pull %	0	14	26	32	26	4
Power—Hp (kW)	164.65 (122.78)	168.35 (125.54)	163.90 (122.22)	149.46 (111.45)	122.55 (91.38)	85.70 (63.91)
Speed—Mph (km/h)	6.18 (9.94)	5.52 (8.89)	4.87 (7.84)	4.24 (6.83)	3.66 (5.88)	3.09 (4.97)
Slip %	4.42	5.21	5.84	6.15	5.84	4.90

TRACTOR SOUND LEVEL WITH CAB	RATED RPM	Radial Ply 1700 dB(A)	Radial Ply 2000 dB(A)	Radial Ply 2200 dB(A)	Bias Ply 2200 dB(A)
Maximum Available Power—Two Hours		74.5	74.0	73.5	75.5
75% of Pull at Maximum Power—Ten Hours					75.0
50% of Pull at Maximum Power—Two Hours					74.5
50% of Pull at Reduced Engine Speed—Two Hours					72.5
Bystander in 15th gear					87.5

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POWER AND FUEL CONSUMPTION AT 1700 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	Fuel Consumption lb/hp.hr (kg/kW.h)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Temperature °F (°C) Air wet bulb	Temperature °F (°C) Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—771 rpm)								
189.76 (141.50)	1700	10.110 (38.271)	0.372 (0.226)	18.77 (3.697)	199 (92.7)	60 (15.7)	75 (23.7)	29.220 (98.672)

DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	Fuel Consumption lb/hp.hr (kg/kW.h)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp °F (°C) Cooling med	Temp °F (°C) Air wet bulb	Temp °F (°C) Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
166.86 (124.43)	12532 (55.75)	4.99 (8.04)	1700	2.93	10.335 (39.121)	0.432 (0.263)	16.15 (3.181)	193 (89.4)	46 (7.8)	52 (10.8)	28.925 (97.675)
MAXIMUM POWER IN SELECTED GEARS											
166.47 (124.13)	19591 (87.15)	3.19 (5.13)	1700	6.99		7th Gear		187 (85.8)	39 (3.9)	41 (5.0)	29.010 (97.962)
167.80 (125.13)	12579 (55.95)	5.00 (8.05)	1701	2.84		10th Gear		188 (86.4)	38 (3.3)	41 (5.0)	29.000 (97.929)
172.34 (128.96)	9987 (44.42)	6.49 (10.45)	1700	2.07		12th Gear		186 (85.6)	38 (3.3)	41 (5.0)	29.000 (97.929)

TIRES, BALLAST AND WEIGHT		Bias Ply Tires With Ballast	Bias Ply Tires Without Ballast	Radial Ply Tires With Ballast	Radial Ply Tires Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 20.8-38; 10; 16 *(110)*	Four 20.8-38; 10; 16 *(110)*	Four 20.8R38; 10; 12 *(85)*	Four 20.8R38; 10; 12 *(85)*
Ballast	—Liquid (each inner)	1310 lb *(598 kg)*	None	1100 lb *(499 kg)*	None
	—Cast Iron (each)	None	None	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 14L-16.1; 10; 44 *(305)*	Two 14L-16.1; 10; 44 *(305)*	Two 14L-16.1; 10; 44 *(305)*	Two 14L-16.1; 10; 44 *(305)*
Ballast	—Liquid (each)	None	None	None	None
	—Test Equip. (each)	40 lb *(18 kg)*	None	40 lb *(18 kg)*	None
Height of Drawbar		24.5 in *(620 mm)*	24.5 in *(620 mm)*	23 in *(585 mm)*	23 in *(585 mm)*
Static Weight with Operator	—Rear	16385 lb *(7432 kg)*	13750 lb *(6237 kg)*	16390 lb *(7434 kg)*	14190 lb *(6437 kg)*
	Front	5050 lb *(2291 kg)*	4970 lb *(2254 kg)*	5050 lb *(2291 kg)*	4970 lb *(2254 kg)*
	Total	21435 lb *(9723 kg)*	18720 lb *(8491 kg)*	21440 lb *(9725 kg)*	19160 lb *(8691 kg)*

The Agricultural Experiment Station
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University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1482 — VERSATILE 1150 DIESEL 8 SPEED

DRAWBAR PERFORMANCE AT 2100 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crankshaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 4th (1-4) Gear											
390.69 *(291.34)*	24626 *(109.54)*	5.95 *(9.57)*	2102	3.52	24.663 *(93.360)*	0.440 *(0.268)*	15.84 *(3.121)*	174 *(78.9)*	36 *(1.9)*	44 *(6.7)*	28.820 *(97.321)*
75% of Pull at Maximum Power—Ten Hours 4th (1-4) Gear											
318.01 *(237.14)*	19015 *(84.58)*	6.27 *(10.09)*	2204	2.86	21.720 *(82.219)*	0.476 *(0.290)*	14.64 *(2.884)*	173 *(78.1)*	45 *(7.2)*	47 *(8.2)*	28.804 *(97.267)*
50% of Pull at Maximum Power—Two Hours 4th (1-4) Gear											
217.57 *(162.24)*	12677 *(56.39)*	6.44 *(10.36)*	2242	1.99	17.619 *(66.695)*	0.565 *(0.344)*	12.35 *(2.433)*	171 *(77.2)*	32 *(0.0)*	35 *(1.4)*	28.880 *(97.523)*
50% of Pull at Reduced Engine Speed—Two Hours 6th (2-2) Gear											
217.92 *(162.51)*	12678 *(56.39)*	6.45 *(10.37)*	1587	1.82	13.909 *(52.651)*	0.445 *(0.271)*	15.67 *(3.086)*	172 *(77.5)*	42 *(5.5)*	51 *(10.5)*	28.840 *(97.388)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crankshaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
354.07 *(264.03)*	43219 *(192.25)*	3.07 *(4.94)*	2147	14.50	2nd (1-2) Gear	175 *(79.2)*	44 *(6.7)*	54 *(12.2)*	28.820 *(97.321)*
396.17 *(295.43)*	31095 *(138.32)*	4.78 *(7.69)*	2098	4.78	3rd (1-3) Gear	176 *(79.7)*	41 *(5.0)*	50 *(10.0)*	28.870 *(97.490)*
400.29 *(298.50)*	25353 *(112.78)*	5.92 *(9.53)*	2097	3.76	4th (1-4) Gear	175 *(79.2)*	41 *(5.0)*	50 *(10.0)*	28.890 *(97.557)*
399.16 *(297.65)*	21807 *(97.00)*	6.86 *(11.05)*	2099	3.12	5th (2-1) Gear	174 *(78.6)*	41 *(5.0)*	50 *(10.0)*	28.880 *(97.523)*
393.77 *(293.63)*	17377 *(77.29)*	8.50 *(13.68)*	2105	2.51	6th (2-2) Gear	174 *(78.9)*	41 *(5.0)*	50 *(10.0)*	28.870 *(97.490)*

LUGGING ABILITY IN 4th (1-4) GEAR

Crankshaft Speed rpm	2097	1894	1680	1470	1267	1059
Pull—lbs *(kN)*	25353 *(112.78)*	29219 *(129.97)*	33420 *(148.70)*	36919 *(164.22)*	36885 *(164.07)*	36092 *(160.55)*
Increase in Pull %	0	15	32	46	45	42
Power—Hp *(kW)*	400.29 *(298.50)*	413.54 *(308.38)*	417.60 *(311.42)*	397.22 *(296.20)*	341.21 *(254.44)*	279.89 *(208.71)*
Speed—Mph *(km/h)*	5.92 *(9.53)*	5.31 *(8.54)*	4.69 *(7.54)*	4.03 *(6.49)*	3.47 *(5.58)*	2.91 *(4.68)*
Slip %	3.76	4.47	5.40	6.30	6.45	6.30

TRACTOR SOUND LEVEL WITH CAB	1700 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	79.5	81.0	81.5
75% of Pull at Maximum Power—Ten Hours			80.0
50% of Pull at Maximum Power—Two Hours			79.5
50% of Pull at Reduced Engine Speed—Two Hours			76.5
Bystander in 8th (2-4) gear			91.0

SUPPLEMENTARY TESTS
DRAWBAR PERFORMANCE AT 1900 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crankshaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 4th (1-4) Gear											
402.73 *(300.32)*	28383 *(126.25)*	5.32 *(8.56)*	1901	4.43	24.358 *(92.206)*	0.422 *(0.257)*	16.53 *(3.257)*	174 *(78.6)*	41 *(4.7)*	45 *(8.6)*	28.815 *(97.304)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crankshaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
351.92 *(262.43)*	45052 *(191.50)*	3.07 *(4.95)*	2150	14.90	2nd (1-2) Gear	175 *(79.2)*	44 *(6.7)*	54 *(12.2)*	28.820 *(97.321)*
407.96 *(304.21)*	35870 *(159.56)*	4.26 *(6.86)*	1900	6.15	3rd (1-3) Gear	175 *(79.4)*	41 *(5.0)*	50 *(10.0)*	28.860 *(97.456)*
414.31 *(308.95)*	29206 *(129.91)*	5.32 *(8.56)*	1900	4.39	4th (1-4) Gear	174 *(78.6)*	41 *(5.0)*	50 *(10.0)*	28.880 *(97.523)*
414.81 *(309.32)*	25219 *(112.18)*	6.17 *(9.93)*	1897	3.00	5th (2-1) Gear	175 *(79.2)*	41 *(5.0)*	50 *(10.0)*	28.870 *(97.490)*
415.21 *(309.62)*	20385 *(90.68)*	7.64 *(12.29)*	1899	2.80	6th (2-2) Gear	175 *(79.2)*	41 *(5.0)*	50 *(10.0)*	28.870 *(97.490)*

Department of Agricultural Engineering

Dates of Test: November 11-19, 1982

Manufacturer: VERSATILE FARM EQUIPMENT CO., 1260 Clarence Avenue, Winnipeg, Manitoba Canada R3T 1T3

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8376 **Fuel weight** 6.974 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 9.293 gal *(35.177 l)* **Drained from motor** 8.658 gal *(32.775 l)* **Transmission and hydraulic lubricant** Hydraul 56 fluid or equivalent **Final drive lubricant** SAE 85W-140 **Total time engine was operated** 35.5 hours.

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 31126712 **Crankshaft** lengthwise **Rated rpm** 1750 to 2100 **Bore and stroke** 6.25" × 6.25" *(158.8 mm × 158.8 mm)* **Compression ratio** 15.5 to 1 **Displacement** 1150 cu in *(18848 ml)* **Starting system** 24 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type four wheel drive with duals **Serial No.** 1150 82 201219 **Tread width** rear 83.1" *(2110 mm)* to 151" *(3836 mm)* front 83.1" *(2110 mm)* to 151" *(3836 mm)* **Wheel base** 140" *(3560 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 91.8" *(2333 mm)* Vertical distance above roadway 45" *(1143 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph (km/h)** first 3.0 *(4.8)* second 3.7 *(6.0)* third 5.3 *(8.5)* fourth 6.5 *(10.5)* fifth 7.4 *(12.0)* sixth 9.1 *(14.6)* seventh 13.0 *(20.9)* eighth 16.0 *(25.7)* reverse 3.5 *(5.6)*, 4.3 *(6.9)*, 6.1 *(9.8)*, 7.5 *(12.0)* **Clutch** multiple dry disc operated by foot pedal **Brakes** caliper disc hydraulically operated by foot pedal **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 257" *(6.53 m)* left 257" *(6.53 m)* **Turning space diameter** (on concrete surface without brake) right 575" *(14.61 m)* left 575" *(14.61 m)* **Power take-off** none.

REPAIRS and ADJUSTMENT: No repairs or adjustments.

DRAWBAR PERFORMANCE AT 1750 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crankshaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 4th (1-4) Gear											
411.32 *(306.72)*	31691 *(140.97)*	4.87 *(7.83)*	1750	5.09	24.054 *(91.053)*	0.408 *(0.248)*	17.10 *(3.369)*	175 *(79.2)*	42 *(5.6)*	50 *(10.0)*	28.790 *(97.220)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crankshaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
352.07 *(262.54)*	42983 *(191.20)*	3.07 *(4.94)*	2149	14.65	2nd (1-2) Gear	175 *(79.2)*	44 *(6.7)*	54 *(12.2)*	28.820 *(97.321)*
401.98 *(299.76)*	39474 *(175.59)*	3.82 *(6.15)*	1748	8.50	3rd (1-3) Gear	176 *(79.7)*	41 *(5.0)*	50 *(10.0)*	28.860 *(97.456)*
418.37 *(311.98)*	32227 *(143.35)*	4.87 *(7.83)*	1750	5.09	4th (1-4) Gear	174 *(78.9)*	41 *(5.0)*	50 *(10.0)*	28.880 *(97.523)*
419.07 *(312.50)*	27772 *(123.54)*	5.66 *(9.11)*	1747	4.08	5th (2-1) Gear	175 *(79.4)*	41 *(5.0)*	50 *(10.0)*	28.870 *(97.490)*
420.03 *(313.22)*	22432 *(99.78)*	7.02 *(11.30)*	1752	3.12	6th (2-2) Gear	176 *(79.7)*	41 *(5.0)*	50 *(10.0)*	28.870 *(97.490)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(85)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(85)*
Ballast	—Liquid (each)	1936 lb *(878 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 30.5L-32, 10, inner 14 *(95)* outer 12 *(85)*	Four 30.5L-32, 10, inner 14 *(95)* outer 12 *(85)*
Ballast	—Liquid (each inner)	1808 lb *(820 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		18 in *(455 mm)*	18 in *(455 mm)*
Static Weight with Operator	—Rear	19835 lb *(8997 kg)*	12090 lb *(5484 kg)*
	Front	26665 lb *(12095 kg)*	23050 lb *(10455 kg)*
	Total	46500 lb *(21092 kg)*	35140 lb *(15939 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 111°F *(43.9°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1482.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Versatile 1150 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1463 — STEIGER PANTHER KP-1400 DIESEL 12 SPEED

DRAWBAR PERFORMANCE AT 2100 RPM

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 7th Gear											
327.93	18114	6.79	2100	2.58	20.666	0.440	15.87	175	47	54	28.860
(244.54)	*(80.57)*	*(10.93)*			*(78.229)*	*(0.267)*	*(3.126)*	*(79.4)*	*(8.1)*	*(11.9)*	*(97.456)*
75% of Pull at Maximum Power—Ten Hours 7th Gear											
258.98	13718	7.08	2177	2.04	17.816	0.480	14.54	171	31	32	28.998
(193.12)	*(61.02)*	*(11.39)*			*(67.442)*	*(0.292)*	*(2.864)*	*(77.2)*	*(−0.3)*	*(0.1)*	*(97.922)*
50% of Pull at Maximum Power—Two Hours 7th Gear											
176.77	9146	7.25	2217	1.54	14.608	0.576	12.10	170	20	21	29.260
(131.82)	*(40.68)*	*(11.66)*			*(55.297)*	*(0.351)*	*(2.384)*	*(76.4)*	*(−6.9)*	*(−6.4)*	*(98.807)*
50% of Pull at Reduced Engine Speed—Two Hours 9th Gear											
176.75	9146	7.25	1550	1.45	11.722	0.463	15.08	171	24	25	29.280
(131.80)	*(40.68)*	*(11.66)*			*(44.373)*	*(0.281)*	*(2.970)*	*(76.9)*	*(−4.4)*	*(−3.9)*	*(98.874)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
278.39	40805	2.56	2139	14.40	2nd Gear	175	59	63	28.400
(207.60)	*(181.50)*	*(4.12)*				*(79.2)*	*(15.0)*	*(17.2)*	*(95.903)*
322.44	37909	3.19	2099	8.11	3rd Gear	174	58	61	28.390
(240.44)	*(168.63)*	*(5.13)*				*(78.9)*	*(14.4)*	*(16.1)*	*(95.869)*
329.80	31356	3.94	2103	5.34	4th Gear	175	58	62	28.400
(245.93)	*(139.48)*	*(6.35)*				*(79.4)*	*(14.4)*	*(16.7)*	*(95.903)*
333.18	25935	4.82	2101	3.88	5th Gear	176	59	63	28.430
(248.45)	*(115.36)*	*(7.75)*				*(80.0)*	*(15.0)*	*(17.2)*	*(96.004)*
330.32	21671	5.72	2099	3.72	6th Gear	175	58	62	28.400
(246.32)	*(96.40)*	*(9.20)*				*(79.4)*	*(14.4)*	*(16.7)*	*(95.903)*
331.28	18291	6.79	2100	2.58	7th Gear	175	46	52	28.870
(247.03)	*(81.36)*	*(10.93)*				*(79.4)*	*(7.8)*	*(11.1)*	*(97.490)*
330.90	15184	8.17	2098	2.17	8th Gear	175	51	56	28.500
(246.79)	*(67.54)*	*(13.15)*				*(79.2)*	*(10.6)*	*(13.3)*	*(96.240)*

LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2100	1890	1684	1470	1249	1053
Pull—lbs *(kN)*	18291 *(81.36)*	21264 *(94.59)*	22755 *(101.22)*	23999 *(106.75)*	23247 *(103.41)*	21084 *(93.79)*
Increase in Pull %	0	16	24	31	27	15
Power—Hp *(kW)*	331.28 *(247.03)*	344.48 *(256.88)*	327.52 *(244.23)*	300.69 *(224.22)*	247.64 *(184.67)*	190.08 *(141.75)*
Speed—Mph *(km/h)*	6.79 *(10.93)*	6.07 *(9.78)*	5.40 *(8.69)*	4.70 *(7.56)*	3.99 *(6.43)*	3.38 *(5.44)*
Slip %	2.58	3.24	3.40	3.88	3.72	3.24

TRACTOR SOUND LEVEL WITH CAB	1700 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	74.5	75.0	76.0
75% of Pull at Maximum Power—Ten Hours			77.0
50% of Pull at Maximum Power—Two Hours			75.5
50% of Pull at Reduced Engine Speed—Two Hours			74.0
Bystander in 12th gear			94.0

SUPPLEMENTARY TESTS

DRAWBAR PERFORMANCE AT 1900 RPM

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 7th Gear											
346.40	21275	6.11	1900	3.20	20.702	0.419	16.86	175	47	54	28.810
(258.31)	*(94.64)*	*(9.83)*			*(78.704)*	*(0.255)*	*(3.262)*	*(79.4)*	*(8.1)*	*(12.2)*	*(97.287)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
315.08	41516	2.85	2006	14.21	3rd Gear	175	59	63	28.390
(234.92)	*(184.67)*	*(4.58)*				*(79.4)*	*(15.0)*	*(17.2)*	*(95.869)*
337.20	36062	3.51	1899	7.14	4th Gear	176	58	62	28.400
(251.45)	*(160.41)*	*(5.64)*				*(80.0)*	*(14.4)*	*(16.7)*	*(95.903)*
345.82	30050	4.31	1898	4.80	5th Gear	176	59	63	28.410
(257.73)	*(133.67)*	*(6.94)*				*(80.0)*	*(15.0)*	*(17.2)*	*(95.936)*
345.63	23180	5.15	1900	4.20	6th Gear	176	58	62	28.400
(257.74)	*(112.05)*	*(8.28)*				*(80.0)*	*(14.4)*	*(16.7)*	*(95.903)*
340.78	21406	6.11	1901	3.15	7th Gear	175	47	55	28.830
(254.12)	*(95.22)*	*(9.83)*				*(79.4)*	*(8.3)*	*(12.8)*	*(97.355)*
345.90	17585	7.38	1901	2.58	8th Gear	176	51	56	28.500
(257.93)	*(78.22)*	*(11.87)*				*(79.7)*	*(10.6)*	*(13.3)*	*(96.240)*
344.11	14707	8.77	1900	2.00	9th Gear	175	52	57	28.490
(256.60)	*(65.42)*	*(14.12)*				*(79.4)*	*(11.1)*	*(13.9)*	*(96.206)*

Department of Agricultural Engineering

Dates of Test: November 17 to December 7, 1982

Manufacturer: STEIGER TRACTOR INC., 406 Main Avenue, Fargo, North Dakota 58126

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8376 **Fuel weight** 6.974 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** CA-CD/SB-SE **To motor** 8.396 gal *(31.784 l)* **Drained from motor** 7.631 gal *(28.887 l)* **Transmission and hydraulic lubricant** SAE 10 hydraulic-transmission fluid **Final drive lubricant** SAE 85W90 **Total time engine was operated** 58.5 hours.

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 11059660 **Crankshaft** lengthwise **Rated rpm** 1700 to 2100 **Bore and stroke** 5.5" × 6.0" *(139.7 mm × 152.4 mm)* **Compression ratio** 14.1 to 1 **Displacement** 855 cu in *(14011 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** P40000504- **Tread width** rear 85.5" *(2172 mm)* to 160.9" *(4087 mm)* front 85.5" *(2172 mm)* to 160.9" *(4087 mm)* **Wheel base** 141.5" *(3594 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 81.6" *(2073 mm)* Vertical distance above roadway 44.1" *(1120 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph (km/h)** first 2.4 *(3.9)* second 2.9 *(4.7)* third 3.4 *(5.5)* fourth 4.1 *(6.6)* fifth 4.9 *(7.9)* sixth 5.8 *(9.3)* seventh 6.8 *(10.9)* eighth 8.2 *(13.2)* ninth 9.6 *(15.4)* tenth 11.6 *(18.7)* eleventh 14.0 *(22.5)* twelfth 16.5 *(26.5)* reverse 3.0 *(4.8)*, 5.1 *(8.2)* **Clutch** multiple wet disc hydraulically power actuated and operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal and mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 285" *(7.24 m)* left 285" *(7.24 m)* **Turning space diameter** (on concrete surface without brake) right 602" *(15.29 m)* left 602" *(15.29 m)* **Power take-off** none.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

DRAWBAR PERFORMANCE AT 1700 RPM

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 7th Gear											
331.83	22855	5.44	1700	3.48	19.447	0.400	17.06	175	49	52	28.515
(247.45)	*(101.66)*	*(8.76)*			*(73.616)*	*(0.249)*	*(3.361)*	*(79.2)*	*(9.2)*	*(11.1)*	*(96.291)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
315.35	41834	2.83	1701	14.02	3rd Gear	175	58	61	28.390
(235.16)	*(186.08)*	*(4.55)*				*(79.4)*	*(14.4)*	*(16.1)*	*(95.869)*
320.52	38831	3.10	1703	8.55	4th Gear	176	58	62	28.400
(239.01)	*(172.73)*	*(4.98)*				*(79.7)*	*(14.4)*	*(16.7)*	*(95.903)*
330.41	32321	3.83	1700	5.46	5th Gear	177	60	64	28.400
(246.39)	*(143.77)*	*(6.17)*				*(80.6)*	*(15.6)*	*(17.8)*	*(95.903)*
332.62	27206	4.58	1700	4.52	6th Gear	177	58	62	28.400
(248.04)	*(121.02)*	*(7.38)*				*(80.3)*	*(14.4)*	*(16.7)*	*(95.903)*
333.90	23006	5.44	1700	3.56	7th Gear	175	50	55	28.510
(249.06)	*(102.33)*	*(8.76)*				*(79.4)*	*(10.0)*	*(12.8)*	*(96.274)*
333.94	19015	6.59	1700	2.66	8th Gear	176	52	57	28.490
(249.02)	*(84.58)*	*(10.60)*				*(80.0)*	*(11.1)*	*(13.9)*	*(96.206)*
332.50	15915	7.84	1700	2.25	9th Gear	176	51	56	28.490
(248.01)	*(70.79)*	*(12.61)*				*(80.0)*	*(10.6)*	*(13.3)*	*(96.206)*
326.97	12949	9.47	1700	1.91	10th Gear	173	50	54	28.490
(243.82)	*(57.60)*	*(15.24)*				*(78.1)*	*(10.0)*	*(12.2)*	*(96.206)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(83)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(83)*
Ballast	—Liquid (each inner)	1765 lb *(801 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(83)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(83)*
Ballast	—Liquid (each)	1555 lb *(705 kg)*	None
	—Cast Iron (each inner)	None	None
Height of Drawbar		20.5 in *(520 mm)*	20.5 in *(520 mm)*
Static Weight with Operator	—Rear	19000 lb *(8618 kg)*	15470 lb *(7017 kg)*
	Front	24175 lb *(10966 kg)*	21065 lb *(9555 kg)*
	Total	43175 lb *(19584 kg)*	36535 lb *(16572 kg)*

Steiger Panther KP-1400 Diesel

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 102°F *(38.9°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1463.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1464 — STEIGER PANTHER CP-1400 DIESEL 12 SPEED

DRAWBAR PERFORMANCE AT 2100 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
326.50 (243.47)	18085 (80.45)	6.77 (10.90)	2100	2.63	21.885 (82.843)	0.467 (0.284)	14.92 (2.939)	179 (81.7)	50 (10.0)	58 (14.4)	28.515 (96.291)
75% of Pull at Maximum Power—Ten Hours 7th Gear											
262.94 (196.08)	13862 (61.66)	7.11 (11.45)	2202	2.41	18.626 (70.508)	0.494 (0.301)	14.12 (2.781)	175 (79.5)	35 (1.5)	39 (4.0)	28.973 (97.837)
50% of Pull at Maximum Power—Two Hours 7th Gear											
180.39 (134.52)	9242 (41.11)	7.32 (11.78)	2242	1.38	14.948 (56.586)	0.578 (0.352)	12.07 (2.377)	174 (78.9)	31 (−0.6)	32 (0.0)	28.855 (97.419)
50% of Pull at Reduced Engine Speed—Two Hours 9th Gear											
180.49 (134.59)	9241 (41.11)	7.32 (11.79)	1578	1.38	12.224 (46.273)	0.472 (0.287)	14.77 (2.909)	173 (79.4)	36 (1.9)	38 (3.1)	28.835 (97.371)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
274.56 (204.74)	40272 (179.14)	2.56 (4.11)	2157	14.89	2nd Gear	177 (80.3)	37 (2.8)	40 (4.4)	28.810 (97.287)
319.24 (238.06)	38381 (170.72)	3.12 (5.02)	2096	9.90	3rd Gear	177 (80.6)	38 (3.3)	41 (5.0)	28.770 (97.152)
333.69 (248.83)	31921 (141.99)	3.92 (6.31)	2100	5.78	4th Gear	177 (80.6)	39 (3.9)	42 (5.6)	28.760 (97.118)
332.85 (248.21)	26050 (115.70)	4.80 (7.72)	2099	3.97	5th Gear	178 (81.1)	46 (7.8)	51 (10.6)	28.610 (96.612)
330.88 (246.74)	21643 (96.27)	5.73 (9.23)	2100	3.16	6th Gear	178 (81.1)	47 (8.3)	53 (11.7)	28.580 (96.510)
333.94 (249.02)	18482 (82.21)	6.78 (10.90)	2100	2.67	7th Gear	179 (81.4)	50 (10.0)	57 (13.9)	28.500 (96.240)
334.94 (249.77)	15378 (68.40)	8.17 (13.14)	2100	2.10	8th Gear	178 (81.1)	48 (8.9)	55 (12.8)	28.550 (96.409)

LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2101	1889	1676	1475	1256	1058
Pull—lbs (kN)	18482 (82.21)	21150 (94.08)	22740 (101.15)	24162 (107.48)	25031 (111.34)	24626 (109.54)
Increase in Pull %	0	14	23	31	35	33
Power—Hp (kW)	333.94 (249.02)	342.04 (255.06)	325.07 (242.40)	303.14 (226.05)	266.88 (199.01)	221.36 (165.07)
Speed—Mph (km/h)	6.78 (10.90)	6.06 (9.76)	5.36 (8.63)	4.70 (7.57)	4.00 (6.45)	3.37 (5.42)
Slip %	2.67	3.00	3.33	3.65	3.97	3.81

TRACTOR SOUND LEVEL WITH CAB	1700 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	73.0	73.0	78.0
75% of Pull at Maximum Power—Ten Hours			77.5
50% of Pull at Maximum Power—Two Hours			77.0
50% of Pull at Reduced Engine Speed—Two Hours			72.5
Bystander in 12th gear			96.0

SUPPLEMENTARY TESTS

DRAWBAR PERFORMANCE AT 1900 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
338.75 (252.60)	20838 (92.69)	6.10 (9.81)	1900	3.12	21.526 (81.486)	0.443 (0.270)	15.74 (3.100)	178 (81.1)	41 (4.7)	47 (8.3)	28.920 (97.659)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
309.99 (231.16)	40580 (180.51)	2.86 (4.61)	2026	14.26	3rd Gear	177 (80.6)	38 (3.3)	41 (5.0)	28.780 (97.186)
335.43 (250.13)	36185 (160.95)	3.48 (5.59)	1899	7.07	4th Gear	178 (80.8)	39 (3.9)	42 (5.6)	28.760 (97.118)
338.42 (252.36)	29535 (131.38)	4.30 (6.92)	1898	4.84	5th Gear	179 (81.7)	46 (7.8)	51 (10.6)	28.620 (96.645)
339.90 (253.46)	24719 (109.96)	5.16 (8.30)	1900	3.81	6th Gear	179 (81.7)	46 (7.8)	52 (11.1)	28.590 (96.544)
342.36 (255.26)	21061 (93.68)	6.10 (9.81)	1899	3.16	7th Gear	179 (81.1)	41 (5.0)	48 (8.9)	28.920 (97.659)
343.73 (256.32)	17503 (77.86)	7.36 (11.85)	1899	2.51	8th Gear	179 (81.7)	48 (8.9)	55 (12.8)	28.560 (96.443)
340.61 (254.00)	14596 (64.92)	8.75 (14.08)	1898	2.01	9th Gear	180 (82.2)	43 (6.1)	49 (9.4)	28.920 (97.659)

Department of Agricultural Engineering

Dates of Test: November 17 to December 7, 1982

Manufacturer: STEIGER TRACTOR INC., 406 Main Avenue, Fargo, North Dakota 58126

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8376 **Fuel weight** 6.974 lbs/gal *(0.835 kg/l)* **Oil SAE** 15W-40 **API service classification** CA-CD/SB-SE **To motor** 7.455 gal *(28.218 l)* **Drained from motor** 6.083 gal *(23.028 l)* **Transmission and hydraulic lubricant** SAE 10 hydraulic-transmission fluid **Final drive lubricant** SAE 85W90 **Total time engine was operated** 39.0 hours.

ENGINE: Make Caterpillar Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 90U18777 **Crankshaft** lengthwise **Rated rpm** 1700 to 2100 **Bore and stroke** 5.4" × 6.5" *(137 mm × 165 mm)* **Compression ratio** 14.5 to 1 **Displacement** 893 cu in *(14636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prestrainer **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** P40000501- **Tread width** rear 85.5" *(2172 mm)* to 160.9" *(4087 mm)* front 85.5" *(2172 mm)* to 160.9" *(4087 mm)* **Wheel base** 141.5" *(3594 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 81.6" *(2073 mm)* Vertical distance above roadway 44.1" *(1120 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph *(km/h)*** first 2.4 *(3.9)* second 2.9 *(4.7)* third 3.4 *(5.5)* fourth 4.1 *(6.6)* fifth 4.9 *(7.9)* sixth 5.8 *(9.3)* seventh 6.8 *(10.9)* eighth 8.2 *(13.2)* ninth 9.6 *(15.4)* tenth 11.6 *(18.7)* eleventh 14.0 *(22.5)* twelfth 16.5 *(26.5)* reverse 3.0 *(4.8)*, 5.1 *(8.2)* **Clutch** multiple wet disc hydraulically power actuated and operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal and mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 285" *(7.24 m)* left 285" *(7.24 m)* **Turning space diameter** (on concrete surface without brake) right 602" *(15.29 m)* left 602" *(15.29 m)* **Power take-off** none.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

DRAWBAR PERFORMANCE AT 1700 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
331.24 (247.01)	22851 (101.64)	5.44 (8.75)	1700	3.45	20.559 (77.822)	0.433 (0.263)	16.11 (3.174)	179 (81.7)	43 (5.8)	49 (9.4)	28.915 (97.642)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
305.72 (227.97)	40323 (179.37)	2.84 (4.58)	2029	14.96	3rd Gear	178 (80.8)	38 (3.3)	41 (5.0)	28.790 (97.220)
316.11 (235.72)	39246 (174.57)	3.02 (4.86)	1702	10.53	4th Gear	178 (81.1)	39 (3.9)	42 (5.6)	28.750 (97.084)
328.83 (245.21)	32293 (143.65)	3.82 (6.15)	1701	5.70	5th Gear	178 (81.1)	46 (7.8)	51 (10.6)	28.630 (96.679)
330.27 (246.28)	26961 (119.93)	4.59 (7.39)	1701	4.21	6th Gear	179 (81.7)	46 (7.8)	52 (11.1)	28.600 (96.578)
333.62 (248.78)	23022 (102.41)	5.43 (8.75)	1699	3.33	7th Gear	179 (81.7)	43 (6.1)	49 (9.4)	28.910 (97.625)
331.87 (247.47)	18925 (84.18)	6.58 (10.58)	1700	2.67	8th Gear	179 (81.7)	47 (8.3)	54 (12.2)	28.570 (96.477)
332.47 (247.92)	15920 (70.81)	7.83 (12.60)	1701	2.18	9th Gear	179 (81.7)	43 (6.1)	49 (9.4)	28.930 (97.692)
326.50 (243.47)	12947 (57.59)	9.46 (15.22)	1701	1.85	10th Gear	179 (81.7)	42 (5.6)	48 (8.9)	28.930 (97.692)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(85)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(85)*
Ballast	—Liquid (each inner)	1910 lb *(866 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(85)*	Four 30.5L-32; 10; inner 14 *(95)* outer 12 *(85)*
Ballast	—Liquid (each inner)	1672 lb *(759 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		20.5 in *(520 mm)*	20.5 in *(520 mm)*
Static Weight with Operator	—Rear	19215 lb *(8716 kg)*	15395 lb *(6983 kg)*
	Front	24400 lb *(11068 kg)*	21055 lb *(9551 kg)*
	Total	43615 lb *(19784 kg)*	36450 lb *(16534 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 122°F *(50.0°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1464**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

Steiger Panther CP-1400 Diesel

NEBRASKA TRACTOR TEST 1465 — STEIGER PANTHER KP-1325 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)								
301.21 *(224.61)*	2100	17.331 *(65.608)*	0.402 *(0.244)*	17.38 *(3.424)*	180 *(82.2)*	58 *(14.2)*	75 *(24.0)*	28.947 *(97.749)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
264.22 *(197.03)*	2168	15.944 *(60.355)*	0.421 *(0.256)*	16.57 *(3.265)*	178 *(81.1)*	58 *(14.4)*	76 *(24.4)*	....
0.00 *(0.00)*	2292	4.771 *(18.060)*	....	....	170 *(76.9)*	57 *(13.9)*	72 *(22.5)*	....
135.54 *(101.07)*	2223	10.557 *(39.963)*	0.544 *(0.331)*	12.84 *(2.529)*	174 *(78.9)*	57 *(13.9)*	74 *(23.3)*	....
301.46 *(224.80)*	2101	17.371 *(65.756)*	0.402 *(0.245)*	17.35 *(3.419)*	182 *(83.3)*	58 *(14.7)*	76 *(24.4)*	....
68.40 *(51.01)*	2248	7.538 *(28.535)*	0.700 *(0.426)*	9.08 *(1.788)*	172 *(77.5)*	58 *(14.4)*	75 *(23.9)*	....
200.81 *(149.74)*	2198	13.291 *(50.312)*	0.462 *(0.281)*	15.11 *(2.976)*	174 *(79.2)*	59 *(15.0)*	76 *(24.7)*	....
Av 181.74 Av *(135.52)*	2205	11.378 *(43.070)*	0.437 *(0.266)*	15.97 *(3.146)*	175 *(79.4)*	58 *(14.4)*	75 *(23.8)*	28.913 *(97.636)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
264.44 *(197.19)*	14301 *(63.61)*	6.93 *(11.16)*	2099	2.73	16.976 *(64.260)*	0.450 *(0.274)*	15.58 *(3.069)*	173 *(78.3)*	46 *(7.8)*	54 *(12.2)*	28.600 *(96.578)*
75% of Pull at Maximum Power—Ten Hours 7th Gear											
210.08 *(156.65)*	10800 *(48.04)*	7.29 *(11.74)*	2192	1.96	14.847 *(56.201)*	0.495 *(0.301)*	14.15 *(2.787)*	171 *(77.2)*	32 *(0.1)*	36 *(2.2)*	29.111 *(98.303)*
50% of Pull at Maximum Power—Two Hours 7th Gear											
143.13 *(106.73)*	7200 *(32.02)*	7.46 *(12.00)*	2229	1.52	12.090 *(45.765)*	0.592 *(0.360)*	11.84 *(2.332)*	170 *(76.4)*	26 *(-3.6)*	27 *(-2.8)*	29.250 *(98.773)*
50% of Pull at Reduced Engine Speed—Two Hours 10th Gear											
143.48 *(106.99)*	7201 *(32.03)*	7.47 *(12.03)*	1307	1.43	9.504 *(35.976)*	0.464 *(0.282)*	15.10 *(2.974)*	170 *(76.7)*	30 *(-1.4)*	30 *(-1.1)*	29.165 *(98.486)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
200.28 *(149.35)*	34267 *(152.42)*	2.19 *(3.53)*	2164	14.80	1st Gear	170 *(76.7)*	26 *(-3.3)*	26 *(-3.3)*	29.190 *(98.570)*
234.89 *(175.16)*	33646 *(149.66)*	2.62 *(4.21)*	2099	12.65	2nd Gear	171 *(76.9)*	26 *(-3.3)*	26 *(-3.3)*	29.200 *(98.604)*
258.58 *(192.82)*	29231 *(130.03)*	3.32 *(5.34)*	2100	6.61	3rd Gear	171 *(77.2)*	39 *(3.9)*	43 *(6.1)*	28.760 *(97.118)*
262.86 *(196.02)*	24308 *(108.13)*	4.06 *(6.53)*	2100	4.98	4th Gear	172 *(77.5)*	39 *(3.9)*	43 *(6.1)*	28.740 *(97.051)*
265.92 *(198.30)*	20302 *(90.31)*	4.91 *(7.90)*	2090	4.03	5th Gear	172 *(77.5)*	40 *(4.4)*	44 *(6.7)*	28.710 *(96.949)*
263.94 *(196.82)*	16862 *(75.01)*	5.87 *(9.45)*	2100	3.22	6th Gear	172 *(77.5)*	42 *(5.6)*	48 *(8.9)*	28.680 *(96.848)*
267.87 *(199.75)*	14487 *(64.44)*	6.93 *(11.16)*	2100	2.81	7th Gear	173 *(78.3)*	46 *(7.8)*	54 *(12.2)*	28.590 *(96.544)*
264.74 *(197.42)*	11875 *(52.82)*	8.36 *(13.46)*	2101	2.23	8th Gear	172 *(77.5)*	45 *(7.2)*	52 *(11.1)*	28.630 *(96.679)*

Department of Agricultural Engineering

Dates of Test: November 22 to December 18, 1982

Manufacturer: STEIGER TRACTOR, INC., 406 Main Avenue, Fargo, North Dakota 58126

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8382 **Fuel weight** 6.979 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** CA-CD/SB-SE **To motor** 8.883 gal *(33.625 l)* **Drained from motor** 8.361 gal *(31.651 l)* **Transmission and hydraulic lubricant** SAE 10 hydraulic-transmission fluid **Final drive lubricant** SAE 85W90 **Total time engine was operated** 68.5 hours.

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 11059656 **Crankshaft** lengthwise **Rated rpm** 1700 to 2100 **Bore and stroke** 5.5" × 6.0" *(139.7 mm × 152.4 mm)* **Compression ratio** 14.1 to 1 **Displacement** 855 cu in *(14011 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** C32500508- **Tread width** rear 79" *(2007 mm)* to 136.4" *(3464 mm)* front 79" *(2007 mm)* to 136.4" *(3464 mm)* **Wheel base** 141.5" *(3594 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 75.5" *(1918 mm)* Vertical distance above roadway 45.4" *(1153 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Advertised speeds mph (km/h)** first 2.4 *(3.9)* second 2.9 *(4.7)* third 3.4 *(5.5)* fourth 4.1 *(6.6)* fifth 4.9 *(7.9)* sixth 5.8 *(9.3)* seventh 6.8 *(10.9)* eighth 8.2 *(13.2)* ninth 9.6 *(15.4)* tenth 11.6 *(18.7)* eleventh 14.0 *(22.5)* twelfth 16.5 *(26.5)* reverse 3.0 *(4.8)*, 5.1 *(8.2)* **Clutch** multiple wet disc hydraulically power actuated and operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal and mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 276" *(7.01 m)* left 276" *(7.01 m)* **Turning space diameter** (on concrete surface without brake) right 581.5" *(14.77 m)* left 581.5" *(14.77 m)* **Power take-off** 1002 rpm at 2100 engine rpm.

SUPPLEMENTARY TESTS
POWER AND FUEL CONSUMPTION AT 1900 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—907 rpm)								
317.51 *(236.77)*	1900	17.194 *(65.088)*	0.378 *(0.230)*	18.47 *(3.638)*	181 *(82.7)*	57 *(14.1)*	75 *(23.8)*	28.940 *(97.726)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
280.91 *(209.47)*	16867 *(75.03)*	6.25 *(10.05)*	1900	3.22	17.047 *(64.530)*	0.425 *(0.259)*	16.48 *(3.246)*	173 *(78.3)*	45 *(6.9)*	51 *(10.3)*	28.580 *(96.510)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
231.51 *(172.64)*	34186 *(152.06)*	2.54 *(4.09)*	2085	14.61	2nd Gear	171 *(77.2)*	25 *(-3.9)*	25 *(-3.9)*	29.200 *(98.604)*
250.70 *(186.95)*	33505 *(149.04)*	2.81 *(4.52)*	1900	12.65	3rd Gear	171 *(77.2)*	26 *(-3.3)*	26 *(-3.3)*	29.190 *(98.570)*
273.87 *(204.22)*	28413 *(126.39)*	3.61 *(5.82)*	1900	6.46	4th Gear	173 *(78.1)*	39 *(3.9)*	43 *(6.1)*	28.720 *(96.983)*
278.93 *(208.00)*	23766 *(105.72)*	4.40 *(7.08)*	1898	5.06	5th Gear	173 *(78.1)*	40 *(4.4)*	44 *(6.7)*	28.700 *(96.916)*
281.38 *(209.83)*	19994 *(88.94)*	5.28 *(8.49)*	1901	5.95	6th Gear	174 *(78.6)*	42 *(5.6)*	48 *(8.9)*	28.670 *(96.814)*
283.90 *(211.70)*	17067 *(75.92)*	6.24 *(10.04)*	1900	3.30	7th Gear	172 *(77.5)*	44 *(6.7)*	51 *(10.6)*	28.640 *(96.713)*
282.51 *(210.67)*	14061 *(62.54)*	7.53 *(12.11)*	1902	2.73	8th Gear	175 *(78.3)*	45 *(7.2)*	52 *(11.1)*	28.650 *(96.679)*
279.90 *(208.79)*	11709 *(52.08)*	8.97 *(14.43)*	1902	2.15	9th Gear	172 *(77.5)*	45 *(7.2)*	53 *(11.7)*	28.620 *(96.645)*

POWER AND FUEL CONSUMPTION AT 1700 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—811 rpm)								
318.98 *(237.86)*	1700	16.855 *(63.802)*	0.369 *(0.224)*	18.93 *(3.728)*	183 *(83.8)*	58 *(14.2)*	74 *(23.6)*	28.920 *(97.659)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
283.76 *(211.60)*	19122 *(85.06)*	5.56 *(8.96)*	1701	3.71	16.690 *(63.180)*	0.412 *(0.251)*	17.00 *(3.349)*	173 *(78.3)*	44 *(6.4)*	49 *(9.2)*	28.600 *(96.578)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
247.69 *(184.70)*	34160 *(151.95)*	2.72 *(4.38)*	1880	14.48	3rd Gear	170 *(76.7)*	26 *(-3.3)*	26 *(-3.3)*	29.190 *(98.570)*
264.43 *(197.18)*	31706 *(141.03)*	3.13 *(5.03)*	1701	3.55	4th Gear	171 *(76.9)*	26 *(-3.3)*	26 *(-3.3)*	29.180 *(98.536)*
278.09 *(207.37)*	26720 *(118.86)*	3.90 *(6.28)*	1700	5.02	5th Gear	173 *(78.3)*	41 *(5.0)*	46 *(7.8)*	28.690 *(96.882)*
285.16 *(212.65)*	22811 *(101.47)*	4.69 *(7.54)*	1701	4.67	6th Gear	174 *(78.9)*	42 *(5.6)*	48 *(8.9)*	28.660 *(96.781)*
286.38 *(213.55)*	19302 *(85.86)*	5.56 *(8.95)*	1702	3.71	7th Gear	174 *(78.6)*	44 *(6.7)*	51 *(10.6)*	28.640 *(96.713)*
286.70 *(213.79)*	15995 *(71.15)*	6.72 *(10.82)*	1702	3.14	8th Gear	174 *(78.6)*	45 *(7.2)*	52 *(11.1)*	28.620 *(96.645)*
285.93 *(213.22)*	13381 *(59.52)*	8.01 *(12.90)*	1704	2.48	9th Gear	173 *(78.3)*	45 *(7.2)*	53 *(11.7)*	28.620 *(96.645)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 119°F *(48.3°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1465.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Steiger Panther KP-1325 Diesel

LUGGING ABILITY IN 7th GEAR						
Crankshaft Speed rpm	2100	1893	1677	1468	1256	1047
Pull—lbs *(kN)*	14487 *(64.44)*	17087 *(76.01)*	19634 *(87.34)*	21505 *(95.66)*	20565 *(91.48)*	18815 *(83.69)*
Increase in Pull %	0	18	36	48	42	30
Power—Hp *(kW)*	267.87 *(199.75)*	283.09 *(211.10)*	286.59 *(213.71)*	273.66 *(204.07)*	224.17 *(167.17)*	171.66 *(128.00)*
Speed—Mph *(km/h)*	6.93 *(11.16)*	6.21 *(10.00)*	5.47 *(8.81)*	4.77 *(7.68)*	4.09 *(6.58)*	3.42 *(5.51)*
Slip %	2.81	3.14	3.79	4.27	4.11	3.79

TRACTOR SOUND LEVEL WITH CAB	1700 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	72.5	73.5	75.5
75% of Pull at Maximum Power—Ten Hours			74.5
50% of Pull at Maximum Power—Two Hours			72.5
50% of Pull at Reduced Engine Speed—Two Hours			71.5
Bystander in 12th gear			94.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each inner)	302 lb *(137 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		13.5 in *(343 mm)*	13.5 in *(343 mm)*
Static Weight with Operator	—Rear	16710 lb *(7580 kg)*	16710 lb *(7580 kg)*
	Front	19105 lb *(8666 kg)*	18500 lb *(8391 kg)*
	Total	35815 lb *(16246 kg)*	35210 lb *(15971 kg)*

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1466
WHITE FARM EQUIPMENT-ISEKI 2-55 DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—656 rpm)								
53.32 *(39.76)*	2200	3.603 *(13.639)*	0.474 *(0.288)*	14.80 *(2.915)*	185 *(85.1)*	51 *(10.4)*	75 *(24.0)*	29.087 *(98.221)*
Standard Power Take-off Speed (540 rpm)—One Hour								
45.74 *(34.11)*	1812	3.072 *(11.629)*	0.471 *(0.286)*	14.89 *(2.933)*	187 *(85.9)*	50 *(10.3)*	75 *(24.0)*	29.085 *(98.216)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
46.60 *(34.75)*	2261	3.134 *(11.863)*	0.471 *(0.287)*	14.87 *(2.929)*	182 *(83.3)*	53 *(11.7)*	78 *(25.6)*	....
0.00 *(0.00)*	2403	1.074 *(4.066)*	....	....	175 *(79.4)*	52 *(11.1)*	76 *(24.4)*	....
23.83 *(17.77)*	2313	2.021 *(7.650)*	0.594 *(0.361)*	11.80 *(2.323)*	178 *(81.4)*	52 *(11.1)*	76 *(24.2)*	....
54.00 *(40.27)*	2200	3.585 *(13.563)*	0.465 *(0.283)*	15.07 *(2.969)*	184 *(84.7)*	51 *(10.6)*	74 *(23.3)*	....
12.15 *(9.06)*	2360	1.533 *(5.803)*	0.884 *(0.538)*	7.93 *(1.561)*	175 *(80.0)*	52 *(11.1)*	76 *(24.7)*	....
35.51 *(26.48)*	2300	2.551 *(9.657)*	0.504 *(0.306)*	13.92 *(2.742)*	181 *(82.8)*	52 *(11.1)*	76 *(24.4)*	....
Av 28.68 *Av* *(21.39)*	2306	2.316 *(8.767)*	0.566 *(0.344)*	12.38 *(2.440)*	180 *(81.9)*	52 *(11.1)*	76 *(24.4)*	29.060 *(98.131)*

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 12th (HH1) Gear											
47.40 *(35.34)*	3650 *(16.24)*	4.87 *(7.84)*	2200	7.55	3.550 *(13.436)*	0.525 *(0.319)*	13.35 *(2.630)*	187 *(85.8)*	49 *(9.2)*	59 *(14.7)*	28.820 *(97.321)*
75% of Pull at Maximum Power—Ten Hours 12th (HH1) Gear											
39.12 *(29.17)*	2813 *(12.51)*	5.21 *(8.39)*	2304	5.45	2.961 *(11.208)*	0.530 *(0.323)*	13.21 *(2.603)*	184 *(84.3)*	37 *(2.6)*	43 *(6.2)*	28.844 *(97.402)*
50% of Pull at Maximum Power—Two Hours 12th (HH1) Gear											
26.82 *(20.00)*	1875 *(8.34)*	5.36 *(8.63)*	2330	3.85	2.354 *(8.911)*	0.615 *(0.374)*	11.39 *(2.244)*	185 *(84.7)*	39 *(3.9)*	45 *(6.9)*	28.950 *(97.760)*
50% of Pull at Reduced Engine Speed—Two Hours 14th (HH2) Gear											
26.80 *(19.99)*	1875 *(8.34)*	5.36 *(8.63)*	1973	3.76	2.016 *(7.630)*	0.527 *(0.321)*	13.30 *(2.620)*	181 *(82.8)*	39 *(3.6)*	45 *(6.9)*	28.905 *(97.608)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
45.21 *(33.72)*	5037 *(22.41)*	3.37 *(5.42)*	2237	14.92	10th (HL2) Gear	186 *(85.3)*	43 *(6.1)*	50 *(10.0)*	28.870 *(97.490)*
46.72 *(34.84)*	4115 *(18.30)*	4.26 *(6.85)*	2198	8.75	11th (HL3) Gear	187 *(86.1)*	45 *(7.2)*	54 *(12.2)*	28.860 *(97.456)*
48.49 *(36.16)*	3728 *(16.58)*	4.88 *(7.85)*	2203	7.55	12th (HH1) Gear	187 *(86.1)*	44 *(6.7)*	52 *(11.1)*	28.870 *(97.490)*
47.67 *(35.55)*	2719 *(12.09)*	6.57 *(10.58)*	2200	5.18	13th (HL4) Gear	186 *(85.6)*	46 *(7.8)*	55 *(12.8)*	28.850 *(97.422)*
47.22 *(35.21)*	2066 *(9.19)*	8.57 *(13.79)*	2200	3.95	14th (HH2) Gear	187 *(85.8)*	47 *(8.3)*	56 *(13.3)*	28.840 *(97.388)*

Department of Agricultural Engineering

Dates of Test: March 17 - April 21, 1983

Manufacturer: ISEKI AND COMPANY, LTD., 2-6 Kioicho, Chiyoda-ku, Tokyo, Japan 102

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8417 **Fuel weight** 7.008 lbs/gal *(0.840 kg/l)* **Oil** White Farm Equipment Supreme Blend **SAE** 30 **API service classification** CC-CD, SD-SF **To motor** 2.139 gal *(8.096 l)* **Drained from motor** 1.999 gal *(7.568 l)* **Transmission and final drive lubricant** White Farm Equipment Company Universal Fluid **Total time engine was operated** 53.0 hours

ENGINE: Make Isuzu Diesel **Model** 4BC2 **Type** four cylinder vertical **Serial No.** 905747 **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 4.02" x 3.94" *(102 mm x 100 mm)* **Compression ratio** 17 to 1 **Displacement** 199.4 cu in *(3268 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow element **Oil cooler** engine coolant heat exchanger for crankcase oil **Fuel filter** two paper elements with sediment bowl and screen **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** 00189 m **Tread width** rear 55.5" *(1410 mm)* to 79.1" *(2010 mm)* front 59.3" *(1505 mm)* **Wheel base** 80.3" *(2040 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 34.0" *(865 mm)* Vertical distance above roadway 30.0" *(762 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.4 *(0.7)* second 0.7 *(1.1)* third 0.8 *(1.4)* fourth 1.0 *(1.5)* fifth 1.3 *(2.0)* sixth 1.6 *(2.6)* seventh 1.9 *(3.1)* eighth 2.2 *(3.6)* ninth 2.9 *(4.6)* tenth 3.8 *(6.0)* eleventh 4.5 *(7.2)* twelfth 5.1 *(8.1)* thirteenth 6.7 *(10.7)* fourteenth 8.6 *(13.8)* fifteenth 10.3 *(16.5)* sixteenth 15.2 *(24.5)* reverse 0.6 *(0.9)*, 1.3 *(2.0)*, 2.9 *(4.7)*, 6.6 *(10.7)* **Clutch** single dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together and hand lever **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 122" *(3.10 m)* left 122" *(3.10 m)* (on concrete surface without brake) right 145" *(3.70 m)* left 145" *(3.70 m)* **Turning space diameter** (on concrete surface with brake applied) right 254" *(6.44 m)* left 254" *(6.44 m)* (on concrete surface without brake) right 300" *(7.62 m)* left 300" *(7.62 m)* **Power take-off** 540 rpm at 1812 engine rpm.

LUGGING ABILITY IN 12th (HH1) GEAR

Crankshaft Speed rpm	2203	1982	1756	1545	1316	1104
Pull—lbs *(kN)*	3728 *(16.58)*	3812 *(16.96)*	3905 *(17.37)*	3958 *(17.61)*	3953 *(17.58)*	3760 *(16.73)*
Increase in Pull %	0	2	5	6	6	1
Power—Hp *(kW)*	48.49 *(36.16)*	44.47 *(33.16)*	40.29 *(30.05)*	35.82 *(26.71)*	30.49 *(22.74)*	24.47 *(18.25)*
Speed—Mph *(km/h)*	4.88 *(7.85)*	4.37 *(7.04)*	3.87 *(6.23)*	3.39 *(5.46)*	2.89 *(4.66)*	2.44 *(3.93)*
Slip %	7.55	7.73	8.09	8.33	8.21	7.73

TRACTOR SOUND LEVEL WITHOUT CAB	**dB(A)**	**Front Wheel Drive Disengaged dB(A)**
Maximum Available Power—Two Hours	92.0	91.0
75% of Pull at Maximum Power—Ten Hours		91.0
50% of Pull at Maximum Power—Two Hours		91.5
50% of Pull at Reduced Engine Speed—Two Hours		88.0
Bystander in 16th (HH4) gear		85.5

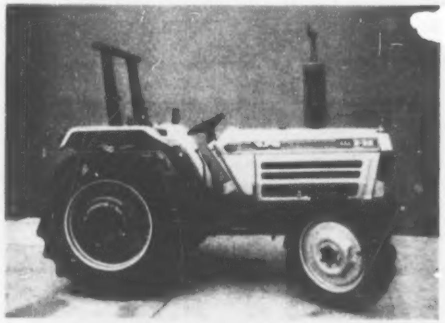
DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 12th (HH1) Gear											
47.63 *(35.52)*	3577 *(15.91)*	4.99 *(8.04)*	2202	5.50	3.567 *(13.504)*	0.525 *(0.319)*	13.35 *(2.630)*	187 *(85.8)*	52 *(10.8)*	62 *(16.4)*	28.765 *(97.135)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
44.39 *(33.10)*	6318 *(28.10)*	2.63 *(4.24)*	2262	14.81	9th (LH4) Gear	185 *(85.0)*	42 *(5.6)*	49 *(9.4)*	28.870 *(97.490)*
48.74 *(36.34)*	3668 *(16.32)*	4.98 *(8.02)*	2198	5.46	12th (HH1) Gear	187 *(85.8)*	43 *(6.1)*	51 *(10.6)*	28.870 *(97.490)*

TIRES, BALLAST AND WEIGHT		**With Ballast**	**Without Ballast**
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9-30, 6, 16 *(110)*	Two 16.9-30, 6, 16 *(110)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	372 lb *(169 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5-24, 6, 30 *(205)*	Two 9.5-24, 6; 30 *(205)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	58 lb *(26 kg)*	None
Height of Drawbar		17 in *(430 mm)*	17 in *(430 mm)*
Static Weight with Operator	—Rear	4400 lb *(1996 kg)*	3655 lb *(1658 kg)*
	Front	2655 lb *(1204 kg)*	2540 lb *(1152 kg)*
	Total	7055 lb *(3200 kg)*	6195 lb *(2810 kg)*



White Farm Equipment-Iseki 2-55 Diesel

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For maximum power tests, the fuel temperature at the injection pump was maintained at 178°F *(81.2°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1466.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
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Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1467
WHITE FARM EQUIPMENT-ISEKI 2-65 DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—656 rpm)								
62.50 (46.61)	2200	4.038 (15.285)	0.453 (0.275)	15.48 (3.049)	189 (87.1)	52 (11.4)	75 (24.1)	28.953 (97.771)
Standard Power Take-off Speed (540 rpm)—One Hour								
55.40 (41.31)	1812	3.421 (12.950)	0.433 (0.263)	16.19 (3.190)	195 (90.4)	52 (10.9)	75 (23.8)	28.930 (97.692)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
55.22 (41.18)	2288	3.562 (13.484)	0.452 (0.275)	15.50 (3.054)	184 (84.2)	52 (11.4)	75 (23.9)	....
0.00 (0.00)	2426	1.224 (4.633)	....	....	179 (81.7)	52 (11.4)	74 (23.1)	....
28.35 (21.14)	2349	2.291 (8.672)	0.566 (0.344)	12.38 (2.438)	181 (82.8)	53 (11.7)	76 (24.7)	....
63.30 (47.20)	2204	4.046 (15.316)	0.448 (0.272)	15.64 (3.082)	186 (85.8)	53 (11.7)	74 (23.6)	....
14.37 (10.72)	2381	1.751 (6.628)	0.854 (0.519)	8.21 (1.617)	179 (81.7)	53 (11.7)	76 (24.4)	....
41.93 (31.27)	2316	2.864 (10.841)	0.479 (0.291)	14.64 (2.884)	182 (83.3)	52 (11.4)	73 (22.8)	....
Av 33.86 Av (25.25)	2328	2.623 (9.929)	0.543 (0.330)	12.91 (2.543)	182 (83.2)	53 (11.6)	75 (23.8)	28.820 (97.591)

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 13th (HL4) Gear											
55.71 (41.54)	3205 (14.25)	6.52 (10.49)	2200	6.50	3.996 (15.127)	0.503 (0.306)	13.94 (2.746)	186 (85.6)	41 (4.7)	50 (9.7)	28.845 (97.409)
75% of Pull at Maximum Power—Ten Hours 13th (HL4) Gear											
44.41 (33.12)	2381 (10.59)	6.99 (11.26)	2316	4.74	3.354 (12.734)	0.531 (0.323)	13.20 (2.600)	183 (83.8)	36 (2.0)	39 (4.1)	28.965 (97.810)
50% of Pull at Maximum Power—Two Hours 13th (HL4) Gear											
30.42 (22.68)	1588 (7.06)	7.[illegible] (11.9[illegible]	2344	3.38	2.694 (10.197)	0.621 (0.377)	11.29 (2.224)	184 (84.2)	39 (3.9)	44 (6.4)	28.675 (96.831)
50% of Pull at Reduced Engine Speed—Two Hours 15th (HH3) Gear											
30.44 (22.70)	1588 (7.06)	7.19 (11.57)	1523	3.21	2.212 (8.374)	0.509 (0.310)	13.76 (2.711)	181 (82.8)	38 (3.3)	42 (5.6)	28.650 (96.747)
MAXIMUM POWER IN SELECTED GEARS											
52.23 (38.95)	4827 (21.47)	4.06 (6.53)	2227	14.70	11th (HL3) Gear			185 (85.0)	37 (2.8)	44 (6.7)	28.950 (97.760)
55.12 (41.10)	4350 (19.35)	4.75 (7.65)	2201	10.22	12th (HH1) Gear			186 (85.6)	39 (3.9)	46 (7.8)	28.900 (97.591)
56.67 (42.26)	3265 (14.52)	6.51 (10.48)	2200	6.57	13th (HL4) Gear			186 (85.6)	38 (3.3)	45 (7.2)	28.910 (97.625)
56.54 (42.16)	2481 (11.04)	8.55 (13.75)	2200	4.85	14th (HH2) Gear			186 (85.6)	40 (4.4)	47 (8.3)	28.880 (97.523)

LUGGING ABILITY IN 13th (HL4) GEAR

Crankshaft Speed rpm	2200	1980	1752	1539	1309	1103
Pull—lbs (kN)	3265 (14.52)	3441 (15.31)	3602 (16.02)	3716 (16.53)	3783 (16.83)	3740 (16.64)
Increase in Pull %	0	5	10	14	16	15
Power—Hp (kW)	56.67 (42.26)	53.49 (39.89)	49.28 (36.75)	44.52 (33.20)	38.43 (28.66)	32.07 (23.91)
Speed—Mph (km/h)	6.51 (10.48)	5.83 (9.38)	5.13 (8.26)	4.49 (7.23)	3.81 (6.13)	3.22 (5.17)
Slip %	6.57	7.12	7.74	7.98	8.34	8.10

Department of Agricultural Engineering

Dates of Test: March 18 to April 20, 1983

Manufacturer: ISEKI AND COMPANY, LTD.,
2-6 Kioicho, Chiyoda-ku, Tokyo, Japan 102

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8416 **Fuel weight** 7.007 lbs/gal *(0.840 kg/l)* **Oil** White Farm Equipment Supreme Blend **SAE** 30 **API service classification** CC-CD, SD-SF **To motor** 2.148 gal *(8.132 l)* **Drained from motor** 1.911 gal *(7.233 l)* **Transmission and final drive lubricant** White Farm Equipment Company Universal Fluid **Total time engine was operated** 41.0 hours

ENGINE: Make Isuzu Diesel **Model** 4BDI **Type** four cylinder vertical **Serial No.** 906159 **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 4.02" x 4.65" *(102 mm x 118 mm)* **Compression ratio** 17.5 to 1 **Displacement** 235 cu in *(3856 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow element **Oil cooler** engine coolant heat exchanger for crankcase oil **Fuel filter** two paper elements with sediment bowl and screen **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** 00215 m **Tread width** rear 55.5" *(1410 mm)* to 79.1" *(2010 mm)* front 59.3" *(1505 mm)* **Wheel base** 84.6" *(2150 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 36.9" *(937 mm)* Vertical distance above roadway 30.0" *(762 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph** *(km/h)* first 0.4 *(0.7)* second 0.7 *(1.1)* third 0.8 *(1.4)* fourth 1.0 *(1.5)* fifth 1.3 *(2.0)* sixth 1.6 *(2.6)* seventh 1.9 *(3.1)* eighth 2.2 *(3.6)* ninth 2.9 *(4.6)* tenth 3.8 *(6.0)* eleventh 4.5 *(7.2)* twelfth 5.1 *(8.1)* thirteenth 6.7 *(10.7)* fourteenth 8.6 *(13.8)* fifteenth 10.3 *(16.5)* sixteenth 15.2 *(24.5)* reverse 0.6 *(0.9)*, 1.3 *(2.0)*, 2.9 *(4.7)*, 6.6 *(10.7)* **Clutch** single dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together and hand lever **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 128" *(3.24 m)* left 128" *(3.24 m)* (on concrete surface without brake) right 160" *(4.06 m)* left 160" *(4.06 m)* **Turning space diameter** (on concrete surface with brake applied) right 265" *(6.73 m)* left 265" *(6.73 m)* (on concrete surface without brake) right 330" *(8.38 m)* left 330" *(8.38 m)* **Power take-off** 540 rpm at 1812 engine rpm

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	94.5	94.0
75% of Pull at Maximum Power—Ten Hours		94.0
50% of Pull at Maximum Power—Two Hours		93.5
50% of Pull at Reduced Engine Speed—Two Hours		89.5
Bystander in 16th (HH4) gear		86.0

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 13th (HL4) Gear											
55.88 (41.67)	3144 (13.99)	6.66 (10.73)	2200	4.80	4.050 (15.329)	0.508 (0.309)	13.80 (2.718)	187 (85.8)	42 (5.3)	50 (10.0)	28.795 (97.236)
MAXIMUM POWER IN SELECTED GEARS											
44.26 (33.01)	6187 (27.52)	2.68 (4.32)	2292	14.77	9th (LH4) Gear			183 (83.6)	35 (1.7)	40 (4.4)	28.970 (97.827)
56.85 (42.39)	3205 (14.25)	6.66 (10.71)	2200	4.79	13th (HL4) Gear			186 (85.6)	38 (3.3)	45 (7.2)	28.950 (97.760)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 16.9-30; 6; 16 (110)	Two 16.9-30; 6; 16 (110)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	347 lb (158 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 9.5-24; 6; 30 (205)	Two 9.5-24; 6; 30 (205)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	46 lb (21 kg)	None
Height of Drawbar		17.5 in (445 mm)	17.5 in (445 mm)
Static Weight with Operator	—Rear	4345 lb (1971 kg)	3650 lb (1656 kg)
	Front	2765 lb (1254 kg)	2670 lb (1211 kg)
	Total	7110 lb (3225 kg)	6320 lb (2867 kg)

White Farm Equipment-Iseki 2-65 Diesel

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For maximum power tests, the fuel temperature at the injection pump was maintained at 170°F *(76.8°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1467**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1468 — WHITE FARM EQUIPMENT 2-110 DIESEL 18 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1007 rpm)								
110.52 (82.41)	2200	6.589 (24.942)	0.418 (0.254)	16.77 (3.304)	183 (83.9)	52 (11.2)	75 (23.8)	29.023 (98.007)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
95.81 (71.45)	2242	5.943 (22.497)	0.435 (0.264)	16.12 (3.176)	179 (81.7)	52 (11.4)	74 (23.3)	....
0.00 (0.00)	2374	2.064 (7.813)	....	....	173 (78.3)	52 (11.1)	76 (24.2)	....
49.21 (36.70)	2304	4.050 (15.331)	0.577 (0.351)	12.15 (2.394)	175 (79.4)	52 (11.1)	73 (22.8)	....
111.86 (83.41)	2199	6.636 (25.120)	0.416 (0.253)	16.86 (3.320)	182 (83.3)	52 (11.4)	76 (24.2)	....
24.90 (18.57)	2332	3.100 (11.735)	0.872 (0.531)	8.03 (1.582)	174 (78.9)	53 (11.7)	76 (24.4)	....
72.91 (54.37)	2276	4.945 (18.719)	0.475 (0.289)	14.74 (2.903)	176 (80.0)	52 (11.4)	74 (23.6)	....
Av 59.11 **Av** (44.08)	2288	4.456 (16.868)	0.528 (0.321)	13.27 (2.613)	176 (80.2)	52 (11.3)	75 (23.8)	28.925 (97.951)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 11th (4D) Gear											
93.66 (69.84)	5494 (24.44)	6.39 (10.29)	2199	3.76	6.601 (24.986)	0.494 (0.300)	14.19 (2.795)	183 (83.9)	53 (11.7)	63 (17.2)	28.500 (96.240)
75% of Pull at Maximum Power—Ten Hours 11th (4D) Gear											
74.24 (55.36)	4144 (18.43)	6.72 (10.81)	2270	4.08	5.676 (21.488)	0.536 (0.326)	13.08 (2.577)	180 (81.9)	44 (6.8)	49 (9.2)	28.860 (97.456)
50% of Pull at Maximum Power—Two Hours 11th (4D) Gear											
50.86 (37.93)	2763 (12.29)	6.90 (11.11)	2305	3.00	4.692 (17.760)	0.646 (0.393)	10.84 (2.136)	177 (80.6)	35 (1.4)	36 (2.2)	29.065 (98.148)
50% of Pull at Reduced Engine Speed—Two Hours 15th (5O) Gear											
50.98 (38.01)	2764 (12.29)	6.92 (11.13)	1402	2.84	3.675 (13.911)	0.505 (0.307)	13.87 (2.733)	179 (81.4)	38 (3.1)	39 (3.9)	29.045 (98.081)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
84.15 (62.75)	9500 (42.26)	3.32 (5.35)	2220	14.77	5th (2D) Gear	181 (82.8)	49 (9.4)	54 (12.2)	28.580 (96.510)
86.87 (64.78)	9138 (40.65)	3.57 (5.74)	2199	12.73	6th (3U) Gear	181 (82.8)	50 (10.0)	56 (13.3)	28.580 (96.510)
90.30 (67.34)	8143 (36.22)	4.16 (6.69)	2200	10.15	7th (2O) Gear	182 (83.3)	52 (11.1)	61 (16.1)	28.530 (96.342)
91.81 (68.46)	7705 (34.27)	4.47 (7.19)	2201	9.21	8th (3D) Gear	183 (83.6)	52 (11.1)	61 (16.1)	28.540 (96.375)
91.89 (68.52)	6607 (29.39)	5.22 (8.39)	2199	7.42	9th (4U) Gear	182 (83.3)	52 (11.1)	61 (16.1)	28.540 (96.375)
90.78 (67.69)	6184 (27.51)	5.50 (8.86)	2200	6.66	10th (3O) Gear	182 (83.3)	52 (11.1)	60 (15.6)	28.550 (96.409)
94.90 (70.77)	5561 (24.73)	6.40 (10.30)	2199	5.64	11th (4D) Gear	182 (83.3)	51 (10.6)	59 (15.0)	28.560 (96.443)
92.72 (69.14)	4727 (21.02)	7.36 (11.84)	2200	4.85	12th (5U) Gear	182 (83.3)	52 (11.1)	60 (15.6)	28.530 (96.342)
92.81 (69.21)	4482 (19.93)	7.77 (12.50)	2199	4.68	13th (4O) Gear	182 (83.3)	52 (11.1)	60 (15.6)	28.520 (96.308)
93.97 (70.08)	3955 (17.59)	8.96 (14.42)	2200	3.79	14th (5D) Gear	182 (83.3)	52 (11.1)	60 (15.6)	28.520 (96.308)

Department of Agricultural Engineering

Dates of Test: March 17 to April 5, 1983

MANUFACTURER: WHITE FARM EQUIPMENT COMPANY, 2625 Butterfield Road, Oak Brook, Illinois 60521

FUEL, OIL AND TIME: FUEL No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8416 **Fuel weight** 7.007 lbs/gal *(0.840 kg/l)* **Oil** White Farm Equipment Company Supreme Blend **SAE** 30 **API service classification** CC-CD, SD-SF **To motor** 3.424 gal *(12.961 l)* **Drained from motor** 2.639 gal *(9.990 l)* **Transmission and final drive lubricant** White Farm Equipment Company Universal Fluid **Front axle lubricant** SAE 80-90 multi-purpose gear lubricant **Total time engine was operated** 45.5 hours

ENGINE: Make Perkins Diesel **Type** six cylinder vertical with turbocharger **Serial No.** TU70018U668790J **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 3.875" x 5.00" *(98.4 mm x 127 mm)* **Compression ratio** 15.5 to 1 **Displacement** 354 cu in *(5802 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** two paper cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and hydraul shift oil **Fuel Filter** two paper elements and water separator **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type front wheel assist **Serial No.** 301398-136 **Tread width** rear 62.5" *(1588 mm)* to 111" *(2820 mm)* front 66" *(1680 mm)* to 80" *(2030 mm)* **Wheel base** 86.3" *(2192 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 33.7" *(856 mm)* Vertical distance above roadway 43.3" *(1100 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (3) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.6 *(2.6)* second 2.0 *(3.2)* third 2.4 *(3.9)* fourth 3.1 *(5.0)* fifth 3.7 *(6.0)* sixth 3.9 *(6.3)* seventh 4.4 *(7.1)* eighth 4.7 *(7.6)* ninth 5.4 *(8.7)* tenth 5.7 *(9.2)* eleventh 6.5 *(10.5)* twelfth 7.4 *(11.9)* thirteenth 7.8 *(12.6)* fourteenth 8.9 *(14.3)* fifteenth 10.7 *(17.2)* sixteenth 13.0 *(20.9)* seventeenth 15.7 *(25.2)* eighteenth 18.8 *(30.3)* reverse 2.0 *(3.2)*, 2.4 *(3.9)*, 2.8 *(4.5)*, 4.7 *(7.6)*, 5.7 *(9.2)*, 6.8 *(10.9)* **Clutch** single dry disc operated by foot pedal **Brakes** multiple dry disc hydraulically power actuated by two foot pedals which can be locked together and mechanically by hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 195" *(4.95 m)* left 195" *(4.95 m)* (on concrete surface without brake) right 233" *(5.92 m)* left 235" *(5.92 m)* **Turning space diameter** (on concrete surface with brake applied) 406" *(10.31m)* left 406" *(10.31 m)* (on concrete surface without brake) right 482" *(12.24 m)* left 482" *(12.24 m)* **Power take-off** 1007 rpm at 2200 engine rpm and 540 rpm at 2192 engine rpm.

LUGGING ABILITY IN 11th (4D) GEAR

Crankshaft Speed rpm	2198	1987	1751	1540	1308	1100
Pull—lbs (kN)	5561 (24.73)	6260 (27.85)	7041 (31.32)	7398 (32.91)	7533 (33.51)	7098 (31.57)
Increase in Pull %	0	13	27	33	35	28
Power—Hp (kW)	94.90 (70.77)	95.54 (71.25)	93.47 (69.70)	85.78 (63.96)	73.97 (55.16)	58.99 (43.99)
Speed—Mph (km/h)	6.40 (10.30)	5.72 (9.21)	4.98 (8.01)	4.35 (7.00)	3.68 (5.93)	3.12 (5.02)
Slip %	5.64	6.66	7.88	8.62	8.77	8.33

TRACTOR SOUND LEVEL WITH CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	78.0	79.0
75% of Pull at Maximum Power—Ten Hours		78.0
50% of Pull at Maximum Power—Two Hours		78.0
50% of Pull at Reduced Engine Speed—Two Hours		77.5
Bystander in 18th (6O) gear		87.5

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 11th (4D) Gear											
95.07 (70.89)	5430 (24.15)	6.57 (10.57)	2199	3.49	6.583 (24.918)	0.485 (0.295)	14.44 (2.845)	183 (83.9)	52 (10.8)	58 (14.4)	28.525 (96.325)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
73.85 (55.07)	12944 (57.58)	2.14 (3.44)	2252	14.83	3rd (1O) Gear	179 (81.7)	47 (8.3)	52 (11.1)	28.580 (96.510)
96.08 (71.65)	5494 (24.44)	6.56 (10.56)	2198	3.49	11th (4D) Gear	182 (83.3)	51 (10.6)	58 (14.4)	28.570 (96.477)

SUPPLEMENTARY TESTS

POWER AND FUEL CONSUMPTION AT 2000 RPM

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—915 rpm)								
111.56 (83.19)	2000	6.381 (24.155)	0.401 (0.244)	17.48 (3.444)	184 (84.4)	52 (11.2)	75 (23.7)	29.015 (97.979)

TIRES, BALLAST AND WEIGHT		Tested Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 20.8-38, 8, 16 (110)
Ballast	—Liquid (each)	None
	—Cast Iron (each)	None
Front Tires	—No., size, ply & psi (kPa)	Two 16.9-26, 8, 18 (125)
Ballast	—Liquid (each)	None
	—Cast Iron (each)	None
Height of Drawbar		18 in (457 mm)
Static Weight with Operator	—Rear	8430 lb (3824 kg)
	—Front	5525 lb (2506 kg)
	—Total	13955 lb (6330 kg)

REPAIRS and ADJSUTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For maximum power tests, the fuel temperature at the injection pump was maintained at 167°F *(75.1°C)*. Ten gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1468.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

White Farm Equipment 2-110 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1469 — JOHN DEERE 2150 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—567 rpm)								
46.47 (34.65)	2500	3.214 (12.166)	0.485 (0.295)	14.46 (2.848)	187 (86.3)	53 (11.7)	75 (23.8)	28.950 (97.692)
Standard Power Take-off Speed (540 rpm)—One Hour								
46.13 (34.40)	2383	3.123 (11.822)	0.475 (0.289)	14.77 (2.910)	188 (86.6)	55 (12.8)	75 (23.7)	28.880 (97.523)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
41.10 (30.65)	2604	2.952 (11.175)	0.504 (0.306)	13.92 (2.743)	185 (85.0)	53 (11.7)	74 (23.1)	....
0.00 (0.00)	2670	1.279 (4.842)	....	....	178 (81.1)	55 (12.8)	76 (24.2)	....
20.80 (15.51)	2634	1.964 (7.435)	0.662 (0.403)	10.59 (2.086)	180 (82.5)	52 (11.4)	76 (24.7)	....
46.56 (34.72)	2500	3.243 (12.276)	0.488 (0.297)	14.36 (2.828)	188 (86.7)	54 (12.5)	76 (24.4)	....
10.56 (7.87)	2672	1.613 (6.106)	1.071 (0.652)	6.55 (1.289)	179 (81.7)	51 (10.6)	72 (22.5)	....
31.23 (23.29)	2634	2.422 (9.168)	0.544 (0.331)	12.90 (2.540)	183 (83.9)	54 (11.9)	76 (24.2)	....
Av 25.04 Av (18.67)	2619	2.245 (8.498)	0.629 (0.383)	11.15 (2.197)	182 (83.5)	53 (11.8)	75 (23.8)	28.838 (97.380)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.h/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (5L) Gear											
38.11 (28.42)	2879 (12.80)	4.97 (7.99)	2500	6.45	3.209 (12.147)	0.590 (0.359)	11.88 (2.340)	189 (87.2)	53 (11.7)	61 (15.8)	28.875 (97.507)
75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear											
30.93 (23.07)	2205 (9.80)	5.27 (8.47)	2612	5.09	2.752 (10.419)	0.624 (0.379)	11.24 (2.214)	188 (86.6)	61 (16.2)	74 (23.2)	28.305 (95.579)
50% of Pull at Maximum Power—Two Hours 9th (5L) Gear											
21.27 (15.86)	1469 (6.53)	5.43 (8.74)	2649	3.34	2.246 (8.503)	0.740 (0.450)	9.47 (1.865)	184 (84.4)	49 (9.2)	53 (11.7)	28.805 (97.270)
50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear											
21.16 (15.78)	1470 (6.54)	5.40 (8.69)	1497	3.31	1.551 (5.871)	0.514 (0.313)	13.65 (2.688)	187 (86.1)	51 (10.7)	79 (25.8)	28.575 (96.491)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
34.99 (26.09)	4875 (21.68)	2.69 (4.33)	2508	14.75	5th (3L) Gear	186 (85.6)	48 (8.9)	51 (10.6)	28.600 (96.848)
36.42 (27.16)	3891 (17.31)	3.51 (5.65)	2502	10.53	6th (3H) Gear	190 (87.8)	56 (13.3)	66 (18.9)	28.750 (97.084)
37.29 (27.81)	3727 (16.58)	3.75 (6.04)	2502	9.44	7th (4L) Gear	189 (87.2)	56 (13.3)	66 (18.9)	28.760 (97.118)
37.65 (28.08)	2868 (12.76)	4.92 (7.92)	2498	6.57	8th (4H) Gear	189 (86.9)	55 (12.8)	64 (17.8)	28.760 (97.118)
38.68 (28.84)	2937 (13.06)	4.94 (7.95)	2498	6.74	9th (5L) Gear	188 (86.7)	53 (11.7)	61 (16.1)	28.760 (97.118)
38.44 (28.66)	2248 (10.00)	6.41 (10.32)	2502	5.19	10th (5H) Gear	190 (87.5)	57 (13.9)	68 (20.0)	28.750 (97.084)
38.69 (28.85)	2077 (9.24)	6.98 (11.24)	2500	4.56	11th (6L) Gear	189 (87.2)	57 (13.9)	68 (20.0)	28.740 (97.051)
37.41 (27.90)	1557 (6.93)	9.01 (14.50)	2502	3.43	12th (6H) Gear	190 (87.5)	58 (14.4)	70 (21.1)	28.740 (97.051)

Department of Agricultural Engineering

Dates of Test: April 15 to May 9, 1983

Manufacturer: JOHN DEERE WERKE MANNHEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8421 **Fuel weight** 7.012 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 1.484 gal *(5.617 l)* **Drained from motor** 1.278 gal *(4.840 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 45.0 hours.

ENGINE: Make John Deere Diesel **Type** three cylinder vertical **Serial No.** 3179DL11551101CD **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.19" x 4.33" *(106.5 mm x 110 mm)* **Compression ratio** 16.8 to 1 **Displacement** 179 cu in *(2934 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and one mesh strainer **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *L02150T466895* **Tread width** rear 55.1" *(1400 mm)* to 78.7" *(1999 mm)* front 49.5" *(1257 mm)* to 79.5" *(2019 mm)* **Wheel base** 74.4" *(1890 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.8" *(781 mm)* Vertical distance above roadway 31.0" *(787 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.6 *(2.5)* second 2.0 *(3.2)* third 2.2 *(3.5)* fourth 2.8 *(4.4)* fifth 3.1 *(5.0)* sixth 4.0 *(6.4)* seventh 4.2 *(6.8)* eighth 5.3 *(8.6)* ninth 5.4 *(8.7)* tenth 6.8 *(11.0)* eleventh 7.4 *(12.0)* twelfth 9.5 *(15.2)* thirteenth 10.7 *(17.2)* fourteenth 13.6 *(21.8)* fifteenth 14.4 *(23.2)* sixteenth 18.3 *(29.5)* reverse 2.4 *(3.9)*, 3.1 *(4.9)*, 3.3 *(5.4)*, 4.2 *(6.8)*, 4.8 *(7.7)*, 6.1 *(9.8)*, 6.5 *(10.4)*, 8.2 *(13.2)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 110" *(2.80 m)* left 110" *(2.80 m)* (on concrete surface without brake) right 122" *(3.10 m)* left 122" *(3.10 m)* **Turning space diameter** (on concrete surface with brake applied) right 244" *(6.20 m)* left 244" *(6.20 m)* (on concrete surface without brake) right 268" *(6.81 m)* left 268" *(6.81 m)* **Power take-off** 540 rpm at 2383 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

Crankshaft Speed rpm	2498	2250	2013	1753	1508	1261
Pull—lbs (kN)	2937 (13.06)	3217 (14.31)	3419 (15.21)	3640 (16.19)	3887 (17.29)	3873 (17.23)
Increase in Pull %	0	10	16	24	32	32
Power—Hp (kW)	38.68 (28.84)	37.84 (28.21)	35.69 (26.61)	32.79 (24.45)	29.79 (22.21)	24.84 (18.52)
Speed—mph (km/h)	4.94 (7.95)	4.41 (7.10)	3.91 (6.30)	3.38 (5.44)	2.87 (4.62)	2.40 (3.87)
Slip %	6.74	7.68	8.26	9.16	10.05	10.05

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	93.0
75% of Pull at Maximum Power—Ten Hours	93.0
50% of Pull at Maximum Power—Two Hours	92.0
50% of Pull at Reduced Engine Speed—Two Hours	89.5
Bystander in 10th (5H) gear	85.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 16.9-28, 6, 16 (110)	Two 16.9-28, 6, 16 (110)
Ballast	—Liquid (each)	395 lb (179 kg)	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi (kPa)	Two 7.50-16, 6, 44 (303)	Two 7.50-16, 6, 44 (303)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	25 lb (11 kg)	None
Height of Drawbar		19.5 in (495 mm)	19.5 in (495 mm)
Static Weight with Operator—Rear		3840 lb (1742 kg)	3070 lb (1393 kg)
—Front		2090 lb (948 kg)	2040 lb (925 kg)
—Total		5930 lb (2690 kg)	5110 lb (2318 kg)

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 140°F *(60.0°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1469.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 2150 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1470 — JOHN DEERE 2350 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—567 rpm)								
56.18 (41.89)	2500	3.669 (13.889)	0.458 (0.279)	15.31 (3.016)	184 (84.2)	54 (12.3)	75 (23.8)	28.850 (97.432)
Standard Power Take-off Speed (540 rpm)—One Hour								
55.69 (41.53)	2382	3.555 (13.457)	0.447 (0.272)	15.67 (3.086)	184 (84.4)	53 (11.4)	74 (23.4)	28.855 (97.439)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
48.73 (36.34)	2552	3.312 (12.537)	0.477 (0.290)	14.71 (2.899)	182 (83.6)	56 (13.1)	78 (25.3)	…… ……
0.00 (0.00)	2636	1.412 (5.345)	…… ……	…… ……	179 (81.7)	54 (12.5)	76 (24.4)	…… ……
24.77 (18.47)	2594	2.356 (8.926)	0.667 (0.406)	10.51 (2.069)	180 (82.5)	52 (10.8)	73 (22.8)	…… ……
56.96 (42.47)	2498	3.693 (13.980)	0.455 (0.277)	15.42 (3.038)	184 (84.4)	52 (11.1)	75 (23.9)	…… ……
12.47 (9.30)	2612	1.848 (6.994)	1.037 (0.631)	6.76 (1.332)	180 (81.9)	54 (11.9)	76 (24.2)	…… ……
36.88 (27.51)	2576	2.799 (10.595)	0.532 (0.324)	13.18 (2.597)	182 (83.3)	54 (12.5)	76 (24.4)	…… ……
Av 29.97 Av (22.35)	2578	2.570 (9.728)	0.601 (0.366)	11.66 (2.297)	181 (82.9)	54 (12.0)	76 (24.2)	28.800 (97.557)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/h (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (5L) Gear											
46.66 (34.80)	3674 (16.34)	4.76 (7.67)	2490	7.60	3.602 (13.635)	0.541 (0.329)	12.96 (2.553)	185 (85.0)	47 (8.1)	56 (13.3)	28.885 (97.540)
75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear											
37.26 (27.78)	2790 (12.41)	5.01 (8.06)	2567	5.47	3.138 (11.880)	0.590 (0.359)	11.87 (2.339)	183 (84.0)	51 (10.4)	61 (16.0)	28.760 (97.118)
50% of Pull at Maximum Power—Two Hours 9th (5L) Gear											
25.53 (19.04)	1860 (8.27)	5.15 (8.28)	2580	3.63	2.586 (9.788)	0.710 (0.432)	9.87 (1.945)	184 (84.4)	49 (9.4)	61 (16.1)	28.885 (97.540)
50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear											
25.51 (19.03)	1861 (8.28)	5.14 (8.27)	1460	3.56	1.801 (6.818)	0.495 (0.301)	14.16 (2.790)	184 (84.2)	52 (10.8)	65 (18.3)	28.870 (97.490)
MAXIMUM POWER IN SELECTED GEARS											
39.25 (29.27)	5688 (25.30)	2.59 (4.16)	2541	14.76	5th (3L) Gear			184 (84.2)	43 (6.1)	47 (8.3)	28.870 (97.490)
44.98 (33.54)	5005 (22.26)	3.37 (5.42)	2500	11.30	6th (3H) Gear			184 (84.4)	45 (7.2)	51 (10.6)	28.860 (97.523)
46.22 (34.46)	4817 (21.43)	3.60 (5.79)	2499	10.06	7th (4L) Gear			185 (85.0)	44 (6.7)	48 (8.9)	28.690 (96.882)
46.73 (34.86)	3692 (16.42)	4.75 (7.64)	2490	7.32	8th (4H) Gear			186 (85.5)	45 (7.2)	49 (9.4)	28.680 (96.848)
47.35 (35.31)	3719 (16.54)	4.77 (7.68)	2500	7.44	9th (5L) Gear			186 (85.5)	45 (7.2)	48 (8.9)	28.680 (96.848)
47.26 (35.24)	2860 (12.72)	6.20 (9.97)	2498	5.46	10th (5H) Gear			185 (85.0)	45 (7.2)	49 (9.4)	28.680 (96.848)
47.55 (35.46)	2634 (11.72)	6.77 (10.89)	2490	5.08	11th (6L) Gear			185 (85.0)	44 (6.7)	48 (8.9)	28.690 (96.882)
46.94 (35.00)	2016 (8.97)	8.73 (14.05)	2500	3.86	12th (6H) Gear			185 (85.0)	44 (6.7)	48 (8.9)	28.690 (96.882)

Department of Agricultural Engineering

Dates of Test: April 12 to May 5, 1983

Manufacturer: JOHN DEERE WERKE MANNHEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8420 **Fuel weight** 7.010 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 1.718 gal *(6.502 l)* **Drained from motor** 1.334 gal *(5.048 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 39.5 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical **Serial No.** 4239DL0755776ICD **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.19" x 4.33" *(106.5 mm x 110 mm)* **Compression ratio** 16.8 to 1 **Displacement** 239 cu in *(3920 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and one mesh strainer **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *L02350T466897* **Tread width** rear 59.8" *(1519 mm)* to 96.1" *(2440 mm)* front 57.6" *(1462 mm)* to 79.1" *(2008 mm)* **Wheel base** 89.2" *(2266 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 29.2" *(741 mm)* Vertical distance above roadway 33.5" *(851 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.5 *(2.4)* second 1.9 *(3.1)* third 2.1 *(3.4)* fourth 2.7 *(4.3)* fifth 3.0 *(4.9)* sixth 3.8 *(6.2)* seventh 4.1 *(6.6)* eighth 5.2 *(8.3)* ninth 5.2 *(8.4)* tenth 6.6 *(10.7)* eleventh 7.2 *(11.6)* twelfth 9.2 *(14.8)* thirteenth 10.4 *(16.7)* fourteenth 13.2 *(21.2)* fifteenth 14.0 *(22.5)* sixteenth 17.8 *(28.6)* reverse 2.3 *(3.8)*, 3.0 *(4.8)*, 3.2 *(5.2)*, 4.1 *(6.6)*, 4.6 *(7.5)*, 5.9 *(9.5)*, 6.3 *(10.1)*, 8.0 *(12.8)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 131.0" *(3.33 m)* left 131.0" *(3.33 m)* (on concrete surface without brake) right 147.0" *(3.73 m)* left 147.0" *(3.73 m)* **Turning space diameter** (on concrete surface with brake applied) right 271.0" *(6.88 m)* left 271.0" *(6.88 m)* (on concrete surface without brake) right 303.0" *(7.70 m)* left 303.0" *(7.70 m)* **Power take-off** 540 rpm at 2362 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

Crankshaft Speed rpm	2500	2251	2004	1749	1501	1249	1003
Pull—lbs (kN)	3719 (16.54)	3960 (17.61)	4243 (18.87)	4471 (19.89)	4650 (20.68)	4719 (20.99)	4570 (20.33)
Increase in Pull %	0	6	14	20	25	27	23
Power—Hp (kW)	47.35 (35.31)	45.10 (33.63)	42.69 (31.84)	38.94 (29.03)	34.50 (25.73)	29.03 (21.64)	22.69 (16.92)
Speed—Mph (km/h)	4.77 (7.68)	4.27 (6.87)	3.77 (6.07)	3.27 (5.26)	2.78 (4.48)	2.31 (3.71)	1.86 (3.00)
Slip %	7.44	7.99	8.70	9.40	10.09	10.32	9.86

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	94.5
75% of Pull at Maximum Power—Ten Hours	93.5
50% of Pull at Maximum Power—Two Hours	93.0
50% of Pull at Reduced Engine Speed—Two Hours	88.5
Bystander in 16th (8H) gear	86.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 16.9-30; 6; 16 *(110)*	Two 16.9-30; 6; 16 *(110)*
Ballast	—Liquid (each)	170 lb *(77 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi (kPa)	Two 7.50-16; 6; 44 *(303)*	Two 7.50-16; 6; 44 *(303)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	20 lb *(9 kg)*	None
Height of Drawbar		19 in *(483 mm)*	19 in *(483 mm)*
Static Weight with Operator	—Rear	4980 lb *(2259 kg)*	4640 lb *(2105 kg)*
	—Front	2210 lb *(1002 kg)*	2170 lb *(984 kg)*
	—Total	7190 lb *(3261 kg)*	6810 lb *(3089 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 141°F *(60.6°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1470**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 2350 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1471 — JOHN DEERE 2550 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—967 rpm)								
65.94 *(49.17)*	2500	4.408 *(16.686)*	0.469 *(0.285)*	14.96 *(2.947)*	186 *(85.5)*	53 *(11.9)*	75 *(23.7)*	29.045 *(98.075)*
Standard Power Take-off Speed (540 rpm)—One Hour								
65.53 *(48.87)*	2302	4.250 *(16.088)*	0.455 *(0.277)*	15.42 *(3.038)*	186 *(85.5)*	53 *(11.6)*	75 *(23.7)*	29.040 *(98.064)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
57.46 *(42.85)*	2564	3.924 *(14.854)*	0.479 *(0.291)*	14.64 *(2.885)*	184 *(84.4)*	56 *(13.3)*	75 *(23.9)*	....
0.00 *(0.00)*	2612	1.605 *(6.076)*	....	....	180 *(82.2)*	53 *(11.7)*	74 *(23.6)*	....
28.94 *(21.58)*	2580	2.568 *(9.721)*	0.622 *(0.378)*	11.27 *(2.220)*	188 *(86.1)*	53 *(11.7)*	74 *(23.6)*	....
65.95 *(49.18)*	2500	4.399 *(16.652)*	0.468 *(0.284)*	14.99 *(2.953)*	186 *(85.6)*	52 *(11.4)*	75 *(23.9)*	....
14.61 *(10.89)*	2604	2.068 *(7.828)*	0.992 *(0.603)*	7.06 *(1.391)*	180 *(82.2)*	52 *(11.4)*	75 *(23.9)*	....
43.35 *(32.33)*	2576	3.190 *(12.067)*	0.516 *(0.314)*	13.58 *(2.675)*	183 *(83.9)*	54 *(12.5)*	75 *(23.9)*	....
Av 35.05 *Av (26.14)*	2573	2.959 *(11.201)*	0.592 *(0.360)*	11.85 *(2.334)*	182 *(83.4)*	54 *(12.4)*	75 *(23.8)*	28.975 *(97.844)*

DRAWBAR PERFORMANCE

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 9th (5L) Gear											
55.38 *(41.29)*	4322 *(19.23)*	4.80 *(7.73)*	2500	6.86	4.315 *(16.335)*	0.546 *(0.332)*	12.83 *(2.528)*	188 *(86.9)*	46 *(7.3)*	52 *(11.1)*	28.820 *(97.321)*
75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear											
44.10 *(32.89)*	3269 *(14.54)*	5.06 *(8.14)*	2502	5.06	3.648 *(13.811)*	0.580 *(0.353)*	12.09 *(2.381)*	187 *(86.1)*	48 *(8.9)*	55 *(12.8)*	28.805 *(97.263)*
50% of Pull at Maximum Power—Two Hours 9th (5L) Gear											
30.25 *(22.55)*	2189 *(9.74)*	5.18 *(8.34)*	25[illegible]	3.36	2.996 *(11.340)*	0.694 *(0.422)*	10.10 *(1.989)*	186 *(85.6)*	52 *(10.8)*	61 *(15.8)*	28.805 *(97.270)*
50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear											
30.22 *(22.54)*	2188 *(9.73)*	5.18 *(8.34)*	1476	3.29	2.068 *(7.830)*	0.480 *(0.292)*	14.61 *(2.878)*	187 *(86.1)*	56 *(13.1)*	67 *(19.4)*	28.755 *(97.101)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
48.67 *(36.29)*	6979 *(31.04)*	2.62 *(4.21)*	2500	14.09	5th (3L) Gear	188 *(86.4)*	43 *(6.1)*	47 *(8.3)*	28.830 *(97.355)*
52.93 *(39.47)*	5884 *(26.17)*	3.37 *(5.43)*	2502	11.51	6th (3H) Gear	189 *(87.2)*	57 *(13.9)*	66 *(18.9)*	28.780 *(97.186)*
53.98 *(40.25)*	5595 *(24.89)*	3.62 *(5.82)*	2501	10.33	7th (4L) Gear	189 *(86.9)*	57 *(13.9)*	66 *(18.9)*	28.780 *(97.186)*
55.05 *(41.04)*	4329 *(19.25)*	4.77 *(7.67)*	2497	7.06	8th (4H) Gear	189 *(87.2)*	57 *(13.9)*	66 *(18.9)*	28.780 *(97.186)*
56.15 *(41.86)*	4379 *(19.48)*	4.81 *(7.74)*	2501	6.86	9th (5L) Gear	188 *(86.7)*	44 *(6.7)*	50 *(10.0)*	28.820 *(97.321)*
56.24 *(41.94)*	3390 *(15.08)*	6.22 *(10.01)*	2500	5.23	10th (5H) Gear	189 *(87.2)*	58 *(14.4)*	65 *(18.3)*	28.770 *(97.152)*
55.93 *(41.71)*	3086 *(13.72)*	6.80 *(10.94)*	2500	4.60	11th (6L) Gear	189 *(87.2)*	57 *(13.9)*	65 *(18.3)*	28.770 *(97.152)*
55.13 *(41.11)*	2361 *(10.50)*	8.76 *(14.09)*	2499	3.54	12th (6H) Gear	189 *(87.2)*	57 *(13.9)*	65 *(18.3)*	28.770 *(97.152)*

Department of Agricultural Engineering

Dates of Test: April 11 to May 3, 1983

Manufacturer: JOHN DEERE WERKE MANNHEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8420 **Fuel weight** 7.010 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 1.635 gal *(6.188 l)* **Drained from motor** 1.197 gal *(4.531 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 37.5 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical **Serial No.** 4239DL06552882CD **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.19" x 4.33" *(106.5 mm x 110 mm)* **Compression ratio** 16.8 to 1 **Displacement** 239 cu in *(3920 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and one mesh screen **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *L02550T466899* **Tread width** rear 65.4" *(1660 mm)* to 96.1" *(2440 mm)* front 59.4" *(1510 mm)* to 77.2" *(1962 mm)* **Wheel base** 89.2" *(2265 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.0" *(764 mm)* Vertical distance above roadway 33.5" *(851 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.5 *(2.4)* second 1.9 *(3.1)* third 2.1 *(3.3)* fourth 2.6 *(4.3)* fifth 3.0 *(4.8)* sixth 3.8 *(6.1)* seventh 4.0 *(6.5)* eighth 5.1 *(8.3)* ninth 5.2 *(8.3)* tenth 6.6 *(10.6)* eleventh 7.1 *(11.5)* twelfth 9.1 *(14.6)* thirteenth 10.2 *(16.5)* fourteenth 13.0 *(21.0)* fifteenth 13.8 *(22.2)* sixteenth 17.6 *(28.3)* reverse 2.3 *(3.7)*, 2.9 *(4.7)*, 3.2 *(5.1)*, 4.1 *(6.5)*, 4.6 *(7.4)*, 5.8 *(9.4)*, 6.2 *(10.0)*, 7.9 *(12.7)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 131" *(3.33 m)* left 131" *(3.33 m)* (on concrete surface without brake) right 147" *(3.73 m)* left 147" *(3.73 m)* **Turning space diameter** (on concrete surface with brake applied) right 271" *(6.88 m)* left 271" *(6.88 m)* (on concrete surface without brake) right 303" *(7.70 m)* left 303" *(7.70 m)* **Power take-off** 540 rpm at 2302 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

Crankshaft Speed rpm	2501	2251	2004	1748	1505	1257
Pull—lbs *(kN)*	4379 *(19.48)*	4714 *(20.97)*	4978 *(22.14)*	5220 *(23.22)*	5226 *(23.25)*	5220 *(23.22)*
Increase in Pull %	0	8	14	19	19	19
Power—Hp *(kW)*	56.15 *(41.86)*	53.85 *(40.15)*	50.26 *(37.48)*	45.62 *(34.02)*	39.20 *(29.23)*	32.75 *(24.42)*
Speed—Mph *(km/h)*	4.81 *(7.74)*	4.28 *(6.89)*	3.79 *(6.09)*	3.28 *(5.27)*	2.81 *(4.53)*	2.35 *(3.79)*
Slip %	6.86	7.94	8.57	9.18	9.51	9.51

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	95.5
75% of Pull at Maximum Power—Ten Hours	95.0
50% of Pull at Maximum Power—Two Hours	93.5
50% of Pull at Reduced Engine Speed—Two Hours	89.5
Bystander in 10th (8H) gear	86.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-30; 6; 16 *(110)*	Two 18.4-30; 6; 16 *(110)*
Ballast	—Liquid (each)	762 lb *(346 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 10.00-16; 6; 32 *(220)*	Two 10.00-16; 6; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	25 lb *(11 kg)*	None
Height of Drawbar		19.5 in *(495 mm)*	19.5 in *(495 mm)*
Static Weight with Operator	—Rear	6165 lb *(2797 kg)*	4640 lb *(2105 kg)*
	—Front	2320 lb *(1052 kg)*	2270 lb *(1029 kg)*
	—Total	8485 lb *(3849 kg)*	6910 lb *(3134 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 136°F *(57.8°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1471.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 2550 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1472 — JOHN DEERE 2750 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—566 rpm)								
75.35 *(56.19)*	2500	4.847 *(18.348)*	0.451 *(0.274)*	15.55 *(3.062)*	192 *(89.2)*	56 *(13.4)*	75 *(23.8)*	28.530 *(96.342)*
Standard Power Take-off Speed (540 rpm)—One Hour								
75.07 *(55.98)*	2384	4.660 *(17.640)*	0.435 *(0.265)*	16.11 *(3.173)*	191 *(88.6)*	56 *(13.3)*	75 *(23.9)*	28.520 *(96.308)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
65.80 *(49.07)*	2570	4.395 *(16.637)*	0.468 *(0.285)*	14.97 *(2.949)*	188 *(86.7)*	54 *(12.2)*	73 *(22.8)*	....
0.00 *(0.00)*	2666	1.596 *(6.042)*	....	....	181 *(82.8)*	55 *(12.8)*	74 *(23.1)*	....
33.64 *(25.09)*	2623	2.944 *(11.144)*	0.614 *(0.373)*	11.42 *(2.251)*	184 *(84.2)*	55 *(12.8)*	74 *(23.1)*	....
75.13 *(56.02)*	2502	4.806 *(18.193)*	0.448 *(0.273)*	15.63 *(3.079)*	192 *(88.9)*	57 *(13.9)*	77 *(25.0)*	....
16.93 *(12.62)*	2642	2.272 *(8.600)*	0.941 *(0.572)*	7.45 *(1.467)*	182 *(83.3)*	56 *(13.3)*	76 *(24.2)*	....
49.86 *(37.18)*	2504	3.625 *(13.722)*	0.510 *(0.310)*	13.76 *(2.710)*	184 *(84.7)*	55 *(12.8)*	74 *(23.1)*	....
Av 40.23 ***Av (30.00)***	**2585**	**3.273** ***(12.390)***	**0.570** ***(0.347)***	**12.29** ***(2.421)***	**185** ***(85.1)***	**55** ***(12.9)***	**74** ***(23.5)***	**28.540** ***(96.375)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (5L) Gear											
62.97 *(46.95)*	4984 *(22.17)*	4.74 *(7.62)*	2505	8.08	4.797 *(18.158)*	0.534 *(0.325)*	13.13 *(2.586)*	191 *(88.1)*	56 *(13.1)*	68 *(20.0)*	28.885 *(97.540)*
75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear											
50.44 *(37.62)*	3782 *(16.82)*	5.00 *(8.05)*	2571	5.54	4.078 *(15.431)*	0.566 *(0.344)*	12.37 *(2.438)*	189 *(87.1)*	58 *(14.6)*	67 *(19.7)*	28.879 *(97.520)*
50% of Pull at Maximum Power—Two Hours 9th (5L) Gear											
34.87 *(26.01)*	2522 *(11.22)*	5.19 *(8.35)*	2614	3.00	3.317 *(12.555)*	0.667 *(0.406)*	10.51 *(2.071)*	188 *(86.7)*	59 *(15.0)*	73 *(22.8)*	28.850 *(97.422)*
50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear											
34.87 *(26.00)*	2522 *(11.22)*	5.18 *(8.34)*	1484	3.33	2.354 *(8.910)*	0.473 *(0.288)*	14.81 *(2.918)*	187 *(85.8)*	60 *(15.6)*	74 *(23.3)*	28.820 *(97.321)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
52.37 *(39.05)*	7581 *(33.72)*	2.59 *(4.17)*	2530	14.83	5th (3L) Gear	188 *(86.7)*	54 *(12.2)*	59 *(15.0)*	28.850 *(97.422)*
59.42 *(44.31)*	6722 *(29.90)*	3.33 *(5.36)*	2500	12.34	6th (3H) Gear	189 *(87.2)*	50 *(10.0)*	59 *(15.0)*	28.910 *(97.625)*
61.24 *(45.66)*	6422 *(28.57)*	3.58 *(5.76)*	2499	11.07	7th (4L) Gear	189 *(86.9)*	50 *(10.0)*	59 *(15.0)*	28.920 *(97.659)*
62.87 *(46.88)*	4995 *(22.22)*	4.72 *(7.60)*	2500	7.86	8th (4H) Gear	189 *(86.9)*	49 *(9.4)*	58 *(14.4)*	28.930 *(97.692)*
63.98 *(47.71)*	5049 *(22.46)*	4.75 *(7.65)*	2497	7.34	9th (5L) Gear	190 *(87.5)*	58 *(14.4)*	61 *(16.1)*	28.910 *(97.625)*
63.53 *(47.37)*	3863 *(17.18)*	6.17 *(9.93)*	2500	5.87	10th (5H) Gear	189 *(87.2)*	50 *(10.0)*	60 *(15.6)*	28.910 *(97.625)*
63.86 *(47.62)*	3561 *(15.84)*	6.72 *(10.82)*	2498	5.41	11th (6L) Gear	189 *(87.2)*	51 *(10.6)*	61 *(16.1)*	28.900 *(97.591)*
63.40 *(47.28)*	2735 *(12.16)*	8.69 *(13.99)*	2501	4.00	12th (6H) Gear	189 *(87.2)*	52 *(11.1)*	63 *(17.2)*	28.900 *(97.591)*

Department of Agricultural Engineering

Dates of Test: April 11 to May 11, 1983

Manufacturer: JOHN DEERE WERKE MANNHEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8420 **Fuel weight** 7.010 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 1.826 gal *(6.913 l)* **Drained from motor** 1.333 gal *(5.047 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 41.0 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger **Serial No.** 4239TL0555635lCD **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.19" x 4.33" *(106.5 mm x 110 mm)* **Compression ratio** 16.8 to 1 **Displacement** 239 cu in *(3920 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and one mesh strainer **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *L02750T466901* **Tread width** rear 65.4" *(1660 mm)* to 96.1" *(2440 mm)* front 59.4" *(1510 mm)* to 77.2" *(1962 mm)* **Wheel base** 89.2" *(2266 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 29.1" *(739 mm)* Vertical distance above roadway 33.5" *(851 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.5 *(2.4)* second 1.9 *(3.1)* third 2.1 *(3.3)* fourth 2.6 *(4.3)* fifth 3.0 *(4.8)* sixth 3.8 *(6.1)* seventh 4.0 *(6.5)* eighth 5.1 *(8.3)* ninth 5.1 *(8.3)* tenth 6.6 *(10.6)* eleventh 7.1 *(11.5)* twelfth 9.1 *(14.6)* thirteenth 10.2 *(16.5)* fourteenth 13.0 *(21.0)* fifteenth 13.8 *(22.2)* sixteenth 17.6 *(28.3)* reverse 2.3 *(3.7)*, 2.9 *(4.7)*, 3.2 *(5.1)*, 4.1 *(6.5)*, 4.6 *(7.4)*, 5.8 *(9.4)*, 6.2 *(10.0)*, 7.9 *(12.7)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 131.0" *(3.33 m)* left 131.0" *(3.33 m)* (on concrete surface without brake) right 150" *(3.81 m)* left 150" *(3.81 m)* **Turning space diameter** (on concrete surface with brake applied) right 274.0" *(6.96 m)* left 274.0" *(6.96 m)* (on concrete surface without brake) right 310.0" *(7.87 m)* left 310.0" *(7.87 m)* **Power take-off** 540 rpm at 2384 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

Crankshaft Speed rpm	2497	2251	2005	1749	1503	1251
Pull—lbs *(kN)*	5049 *(22.46)*	5439 *(24.19)*	5745 *(25.56)*	5816 *(25.87)*	5654 *(25.15)*	5529 *(24.59)*
Increase in Pull %	0	8	14	15	12	10
Power—Hp *(kW)*	63.98 *(47.71)*	61.65 *(45.98)*	57.61 *(42.96)*	50.75 *(37.84)*	42.53 *(31.71)*	34.62 *(25.82)*
Speed—Mph *(km/h)*	4.75 *(7.65)*	4.25 *(6.84)*	3.76 *(6.05)*	3.27 *(5.27)*	2.82 *(4.54)*	2.35 *(3.78)*
Slip %	7.54	8.30	9.04	9.16	8.91	8.67

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	93.0
75% of Pull at Maximum Power—Ten Hours	93.5
50% of Pull at Maximum Power—Two Hours	93.5
50% of Pull at Reduced Engine Speed—Two Hours	89.5
Bystander in 16th (8H) gear	85.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-30; 6; 16 *(110)*	Two 18.4-30; 6; 16 *(110)*
Ballast	—Liquid (each)	1032 lb *(468 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 10.00-16; 6; 32 *(220)*	Two 10.00-16; 6; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	50 lb *(24 kg)*	None
Height of Drawbar		19.5 in *(495 mm)*	19.5 in *(495 mm)*
Static Weight with Operator—Rear		7175 lb *(3255 kg)*	5110 lb *(2318 kg)*
—Front		2450 lb *(1111 kg)*	2390 lb *(1084 kg)*
—Total		9625 lb *(4366 kg)*	7500 lb *(3402 kg)*

John Deere 2750 Diesel

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 142°F *(61.1°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1472**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station,
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1473 — JOHN DEERE 2950 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1030 rpm)								
85.37 (63.66)	2500	5.398 (20.434)	0.443 (0.270)	15.82 (3.115)	184 (84.2)	52 (10.8)	75 (23.9)	28.843 (97.400)
Standard Power Take-off Speed (1000 rpm)—One Hour								
85.50 (63.76)	2407	5.237 (19.824)	0.429 (0.261)	16.33 (3.216)	183 (84.1)	50 (10.2)	74 (23.6)	28.820 (97.321)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
74.37 (55.46)	2563	4.937 (18.689)	0.465 (0.283)	15.06 (2.968)	178 (81.4)	52 (10.8)	76 (24.2)	....
0.00 (0.00)	2650	1.938 (7.336)	....	....	172 (78.1)	52 (11.1)	74 (23.6)	....
37.83 (28.21)	2607	3.359 (12.715)	0.622 (0.379)	11.26 (2.219)	176 (80.0)	51 (10.6)	72 (22.2)	....
86.14 (64.23)	2500	5.382 (20.373)	0.438 (0.267)	16.01 (3.153)	184 (84.2)	51 (10.6)	73 (22.8)	....
19.06 (14.21)	2626	2.648 (10.024)	0.974 (0.593)	7.20 (1.418)	174 (78.6)	51 (10.6)	74 (23.1)	....
56.22 (41.92)	2584	4.137 (15.660)	0.516 (0.314)	13.59 (2.677)	178 (80.8)	52 (10.8)	76 (24.2)	....
Av 45.60 **Av** (34.00)	2588	3.734 (14.135)	0.574 (0.349)	12.21 (2.405)	177 (80.5)	51 (10.7)	74 (23.3)	28.840 (97.390)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (5L) Gear											
72.12 (53.78)	5328 (23.70)	5.08 (8.17)	2501	6.57	5.312 (20.109)	0.517 (0.314)	13.58 (2.674)	187 (86.1)	60 (15.6)	75 (23.6)	28.535 (96.358)
75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear											
57.66 (43.00)	4048 (18.01)	5.34 (8.60)	2582	4.76	4.631 (17.532)	0.563 (0.343)	12.45 (2.453)	181 (82.9)	48 (8.8)	56 (13.4)	28.850 (97.422)
50% of Pull at Maximum Power—Two Hours 9th (5L) Gear											
39.43 (29.40)	2700 (12.01)	5.48 (8.82)	2606	3.33	3.744 (14.171)	0.666 (0.405)	10.53 (2.073)	180 (82.2)	49 (9.4)	52 (10.8)	28.815 (97.304)
50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear											
39.53 (29.48)	2700 (12.01)	5.49 (8.84)	1495	3.21	2.727 (10.325)	0.484 (0.294)	14.49 (2.855)	181 (82.5)	53 (11.4)	57 (13.9)	28.815 (97.304)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
63.90 (47.65)	8700 (38.70)	2.75 (4.43)	2566	14.99	5th (3L) Gear	180 (82.2)	43 (6.1)	44 (6.7)	28.810 (97.287)
69.64 (51.93)	7228 (32.15)	3.61 (5.81)	2499	9.81	6th (3H) Gear	184 (84.2)	58 (14.4)	67 (19.4)	28.470 (96.139)
71.27 (53.15)	6920 (30.78)	3.86 (6.22)	2501	9.05	7th (4L) Gear	184 (84.2)	57 (13.9)	65 (18.3)	28.460 (96.105)
72.01 (53.69)	5344 (23.77)	5.05 (8.13)	2497	6.39	8th (4H) Gear	184 (84.2)	56 (13.3)	63 (17.2)	28.450 (96.071)
73.06 (54.48)	5397 (24.00)	5.08 (8.17)	2501	6.46	9th (5L) Gear	187 (86.1)	60 (15.6)	74 (23.3)	28.530 (96.342)
73.50 (54.81)	4181 (18.60)	6.57 (10.58)	2499	4.80	10th (5H) Gear	185 (84.7)	59 (15.0)	69 (20.6)	28.480 (96.173)
73.11 (54.52)	3818 (16.98)	7.18 (11.56)	2501	4.34	11th (6L) Gear	186 (85.3)	60 (15.6)	70 (21.1)	28.490 (96.208)
71.84 (53.57)	2911 (12.95)	9.25 (14.89)	2501	3.24	12th (6H) Gear	186 (85.3)	60 (15.6)	71 (21.7)	28.500 (96.240)

Department of Agricultural Engineering

Dates of Test: April 18 to May 2, 1983

Manufacturer: JOHN DEERE WERKE MANNHEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8421 **Fuel weight** 7.012 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 2.581 gal *(9.772 l)* **Drained from motor** 2.091 gal *(7.916 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 37.0 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical **Serial No.** 6359DL04554662CD **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.19" x 4.33" *(106.5 mm x 110 mm)* **Compression ratio** 16.8 to 1 **Displacement** 359 cu in *(5883 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and one mesh screen **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type standard **Serial No.** *L02950T466905* **Tread width** rear 61.8" *(1570 mm)* to 94.9" *(2410 mm)* front 58.3" *(1482 mm)* to 80.3" *(2040 mm)* **Wheel base** 100.4" *(2551 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.5" *(776 mm)* Vertical distance above roadway 40" *(1016 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.6 *(2.5)* second 2.0 *(3.2)* third 2.2 *(3.5)* fourth 2.8 *(4.5)* fifth 3.1 *(5.0)* sixth 4.0 *(6.4)* seventh 4.2 *(6.8)* eighth 5.4 *(8.7)* ninth 5.4 *(8.7)* tenth 6.9 *(11.1)* eleventh 7.5 *(12.0)* twelfth 9.5 *(15.3)* thirteenth 10.7 *(17.3)* fourteenth 13.7 *(22.0)* fifteenth 14.5 *(23.3)* sixteenth 18.4 *(29.7)* reverse 2.4 *(3.9)*, 3.1 *(5.0)*, 3.4 *(5.4)*, 4.3 *(6.9)*, 4.8 *(7.7)*, 6.1 *(9.9)*, 6.5 *(10.4)*, 8.3 *(13.3)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 144" *(3.66 m)* left 144" *(3.66 m)* (on concrete surface without brake) right 166" *(4.22 m)* left 166" *(4.22 m)* **Turning space diameter** (on concrete surface with brake applied) right 299" *(7.59 m)* left 299" *(7.59 m)* (on concrete surface without brake) right 343" *(8.71 m)* left 343" *(8.71 m)* **Power take-off** 540 rpm at 2415 engine rpm and 1000 rpm at 2407 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

Crankshaft Speed rpm	2501	2251	2000	1758	1502	1251
Pull—lbs (kN)	5397 (24.00)	5833 (25.95)	6214 (27.64)	6465 (28.76)	6431 (28.61)	6399 (28.46)
Increase in Pull %	0	8	15	20	19	19
Power—Hp (kW)	73.06 (54.48)	70.76 (52.76)	66.56 (49.63)	60.58 (45.18)	51.47 (38.38)	42.67 (31.82)
Speed—Mph (km/h)	5.08 (8.17)	4.55 (7.32)	4.02 (6.46)	3.51 (5.66)	3.00 (4.83)	2.50 (4.02)
Slip %	6.46	6.97	7.70	7.99	7.99	8.13

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	76.0
75% of Pull at Maximum Power—Ten Hours	76.0
50% of Pull at Maximum Power—Two Hours	75.5
50% of Pull at Reduced Engine Speed—Two Hours	70.5
Bystander in 16th (8H) gear	88.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-38; 8; 16 *(110)*	Two 18.4-38; 8; 16 *(110)*
Ballast	—Liquid (each)	445 lb *(202 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 10.00-16; 6; 32 *(220)*	Two 10.00-16; 6; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	28 lb *(12 kg)*	None
Height of Drawbar		23.5 in *(595 mm)*	23.5 in *(595 mm)*
Static Weight with Operator	—Rear	7970 lb *(3615 kg)*	7080 lb *(3211 kg)*
	—Front	3075 lb *(1395 kg)*	3020 lb *(1370 kg)*
	—Total	11045 lb *(5010 kg)*	10100 lb *(4581 kg)*

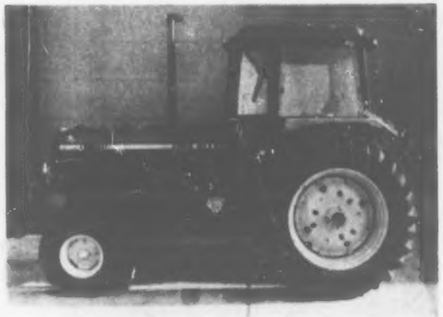
REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 118°F *(47.8°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. During final inspection, the No. 5 piston was found to have an imprint of the exhaust valve. The imprint showed some pitting.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1473**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



John Deere 2950 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1474
JOHN DEERE 4050 QUADRANGE DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)								
101.49 (75.68)	2200	6.714 (25.414)	0.464 (0.282)	15.12 (2.978)	192 (89.2)	68 (20.1)	74 (23.6)	29.000 (97.929)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
88.79 (66.21)	2267	6.147 (23.269)	0.485 (0.295)	14.44 (2.845)	188 (86.7)	70 (21.1)	77 (25.0)	....
0.00 (0.00)	2374	2.496 (9.448)	....	....	175 (79.4)	70 (21.1)	76 (24.4)	....
45.57 (33.98)	2321	4.191 (15.865)	0.644 (0.392)	10.87 (2.142)	182 (83.3)	68 (20.3)	74 (23.6)	....
101.75 (75.87)	2200	6.657 (25.199)	0.458 (0.279)	15.29 (3.011)	194 (90.0)	70 (21.1)	76 (24.4)	....
23.06 (17.20)	2348	3.352 (12.689)	1.019 (0.620)	6.88 (1.356)	177 (80.6)	68 (20.0)	74 (23.1)	....
67.40 (50.26)	2292	5.026 (19.025)	0.523 (0.318)	13.41 (2.642)	187 (86.1)	70 (21.1)	76 (24.4)	....
Av 54.43 Av (40.59)	2300	4.645 (17.583)	0.598 (0.364)	11.72 (2.308)	184 (84.3)	69 (20.8)	76 (24.2)	28.993 (97.903)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 7th (B2) Gear											
90.38 (67.40)	6234 (27.73)	5.42 (8.72)	2199	5.31	6.724 (25.455)	0.521 (0.317)	13.44 (2.648)	193 (89.4)	42 (5.6)	50 (9.7)	29.070 (98.165)
75% of Pull at Maximum Power—Ten Hours 7th (B2) Gear											
71.96 (53.66)	4725 (21.02)	5.71 (9.19)	2274	3.66	5.736 (21.714)	0.559 (0.340)	12.54 (2.471)	187 (86.2)	38 (3.4)	41 (5.1)	29.021 (98.000)
50% of Pull at Maximum Power—Two Hours 7th (B2) Gear											
49.14 (36.64)	3150 (14.01)	5.85 (9.41)	2304	2.60	4.020 (15.216)	0.659 (0.401)	10.64 (2.095)	182 (83.1)	32 (-0.3)	35 (1.7)	28.860 (97.456)
50% of Pull at Reduced Engine Speed—Two Hours 12th (B4) Gear											
49.16 (36.66)	3150 (14.01)	5.85 (9.42)	1396	2.60	3.585 (13.571)	0.511 (0.311)	13.71 (2.701)	180 (81.9)	34 (0.8)	39 (3.9)	28.860 (97.456)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
77.22 (57.58)	10351 (46.04)	2.80 (4.51)	2227	14.66	3rd (A3) Gear	187 (86.1)	37 (2.8)	40 (4.4)	29.050 (98.097)
88.84 (66.25)	8850 (39.36)	3.76 (6.06)	2199	8.52	4th (A4) Gear	193 (89.2)	40 (4.4)	48 (8.9)	29.080 (98.199)
90.07 (67.17)	8078 (35.93)	4.18 (6.73)	2199	7.30	5th (B1) Gear	192 (88.9)	40 (4.4)	47 (8.3)	29.070 (98.165)
90.48 (67.47)	6735 (29.96)	5.04 (8.11)	2200	5.84	6th (C1) Gear	192 (88.9)	40 (4.4)	47 (8.3)	29.070 (98.165)
91.86 (68.50)	6353 (28.26)	5.42 (8.73)	2202	5.42	7th (B2) Gear	191 (88.3)	38 (3.3)	45 (7.2)	29.070 (98.165)
92.06 (68.65)	5320 (23.66)	6.49 (10.44)	2200	4.40	8th (C2) Gear	191 (88.3)	40 (4.4)	48 (8.9)	29.080 (98.199)
90.97 (67.84)	4770 (21.21)	7.15 (11.51)	2198	4.05	9th (B3) Gear	193 (89.4)	40 (4.4)	48 (8.9)	29.080 (98.199)
88.12 (65.71)	4230 (18.82)	7.92 (12.74)	2200	3.33	10th (D1) Gear	192 (88.9)	41 (5.0)	49 (9.4)	29.080 (98.199)
88.27 (65.82)	3880 (17.26)	8.54 (13.75)	2199	3.58	11th (C3) Gear	192 (88.9)	42 (5.6)	49 (9.4)	29.080 (98.199)

Department of Agricultural Engineering

Dates of Test: April 1-19, 1983

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 2[illegible], Waterloo, Iowa 50702

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8417 **Fuel weight** 7.008 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 3.916 gal *(14.824 l)* **Drained from motor** 3.519 gal *(13.321 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 39.0 hours

ENGINE: **Make** John Deere Diesel **Type** six cylinder vertical **Serial No.** *RG6466D241920* **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 4.57" x 4.75" *(116.0 mm x 120.6 mm)* **Compression ratio** 17.0 to 1 **Displacement** 466 cu in *(7636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prestrainer **Muffler** vertical **Cooling medium temperature control** two thermostats and variable speed fan.

CHASSIS: **Type** standard with duals **Serial No.** *RW4050H001942* **Tread width** rear 60.0" *(1524 mm)* to 114" *(2890 mm)* front 56" *(1420 mm)* to 82.6" *(2095 mm)* **Wheel base** 106.7" *(2710 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 31.5" *(800 mm)* Vertical distance above roadway 43" *(1092 mm)* Horizontal distance from center of rear wheel tread 0.4" *(10 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.9 *(3.1)* second 2.5 *(4.0)* third 3.2 *(5.1)* fourth 4.1 *(6.5)* fifth 4.4 *(7.2)* sixth 5.3 *(8.5)* seventh 5.6 *(9.1)* eighth 6.7 *(10.8)* ninth 7.4 *(11.8)* tenth 8.1 *(13.0)* eleventh 8.7 *(14.0)* twelfth 9.4 *(15.1)* thirteenth 10.3 *(16.6)* fourteenth 11.1 *(17.8)* fifteenth 13.4 *(21.6)* sixteenth 17.0 *(27.4)* reverse 3.1 *(5.0)*, 3.9 *(6.3)*, 7.1 *(11.5)*, 8.4 *(13.6)*, 9.1 *(14.6)*, 10.7 *(17.3)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 146" *(3.7 m)* left 146" *(3.7 m)* (on concrete surface without brake) right 157" *(4.0 m)* left 157" *(4.0 m)* **Turning space diameter** (on concrete surface with brake applied) right 295.8" *(7.51 m)* left 295.8" *(7.51 m)* (on concrete surface without brake) right 326.9" *(8.30 m)* left 326.9" *(8.30 m)* **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm.

LUGGING ABILITY IN 7th (B2) GEAR

Crankshaft Speed rpm	2202	1982	1762	1540	1319	1105	891
Pull—lbs (kN)	6353 (28.26)	6890 (30.65)	7256 (32.28)	7688 (34.20)	8037 (35.75)	8126 (36.15)	7837 (34.86)
Increase in Pull %	0	8	14	21	27	28	23
Power—Hp (kW)	91.86 (68.50)	89.32 (66.60)	83.16 (62.01)	76.51 (57.05)	68.24 (50.89)	57.65 (42.99)	45.08 (33.59)
Speed—Mph (km/h)	5.42 (8.73)	4.86 (7.82)	4.30 (6.92)	3.73 (6.01)	3.18 (5.12)	2.66 (4.28)	2.16 (3.47)
Slip %	5.42	5.77	6.33	6.89	7.30	7.57	7.16

TRACTOR SOUND LEVEL WITH CAB	2000 RPM dB(A)	2200 RPM dB(A)
Maximum Available Power—Two Hours	75.0	74.0
75% of Pull at Maximum Power—Ten Hours		74.0
50% of Pull at Maximum Power—Two Hours		73.5
50% of Pull at Reduced Engine Speed—Two Hours		71.5
Bystander in 16th (D4) gear		89.0

SUPPLEMENTARY TESTS
POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—912 rpm)								
99.95 (74.53)	2001	6.317 (23.913)	0.443 (0.269)	15.82 (3.117)	191 (88.3)	69 (20.5)	75 (23.8)	29.000 (97.929)

DRAWBAR PERFORMANCE AT 2000 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 7th (B2) Gear											
89.18 (66.50)	6820 (30.33)	4.90 (7.89)	2001	5.84	6.457 (24.442)	0.507 (0.309)	13.81 (2.721)	191 (88.3)	43 (5.8)	51 (10.3)	29.040 (98.064)

MAXIMUM POWER IN SELECTED GEAR

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
89.86 (67.01)	6876 (30.58)	4.90 (7.89)	2000	5.84	7th (B2) Gear	191 (88.3)	43 (6.1)	51 (10.6)	29.040 (98.064)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Four 18.4-34, 6, 12 (85)	Four 18.4-34, 6, 12 (85)
Ballast	—Liquid (each inner)	362 lb (164 kg)	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi (kPa)	Two 10.00-16, 6, 32 (220)	Two 10.00-16, 6, 32 (220)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	55 lb (25 kg)	None
Height of Drawbar		22.5 in (570 mm)	22.5 in (570 mm)
Static Weight with Operator	—Rear	9370 lb (4250 kg)	8645 lb (3921 kg)
	—Front	3635 lb (1649 kg)	3525 lb (1599 kg)
	—Total	13005 lb (5899 kg)	12170 lb (5520 kg)

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests the fuel temperature at the injection pump return was maintained at 136°F *(57.8°C)*. Nine gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1474**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 4050 Quadrange Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1475
JOHN DEERE 4250 QUADRANGE DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)								
120.21 *(89.64)*	2200	7.656 *(28.981)*	0.446 *(0.272)*	15.70 *(3.093)*	188 *(86.9)*	59 *(15.2)*	74 *(23.4)*	28.953 *(97.771)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
104.15 *(77.66)*	2243	7.030 *(26.611)*	0.473 *(0.288)*	14.81 *(2.918)*	185 *(85.0)*	66 *(19.2)*	75 *(23.9)*	....
0.00 *(0.00)*	2340	2.513 *(9.513)*	....	....	172 *(78.1)*	66 *(18.6)*	74 *(23.1)*	....
53.32 *(39.76)*	2296	4.680 *(17.716)*	0.615 *(0.374)*	11.99 *(2.244)*	182 *(83.3)*	66 *(18.6)*	73 *(22.8)*	....
121.14 *(90.33)*	2201	7.724 *(29.239)*	0.447 *(0.272)*	15.68 *(3.089)*	188 *(86.7)*	67 *(19.4)*	76 *(24.4)*	....
26.89 *(20.05)*	2316	3.669 *(13.889)*	0.956 *(0.582)*	7.33 *(1.444)*	177 *(80.6)*	67 *(19.4)*	74 *(23.6)*	....
79.18 *(59.04)*	2274	5.891 *(22.300)*	0.521 *(0.317)*	13.44 *(2.648)*	184 *(84.4)*	66 *(18.9)*	74 *(23.1)*	....
Av 64.11 ***Av (47.81)***	**2278**	**5.251** ***(19.877)***	**0.574** ***(0.349)***	**12.21** ***(2.405)***	**181** ***(83.0)***	**66** ***(19.1)***	**74** ***(23.3)***	**28.970** ***(97.827)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 7th (B2) Gear											
106.38 *(79.33)*	6977 *(31.03)*	5.72 *(9.20)*	2200	4.89	7.653 *(28.970)*	0.504 *(0.307)*	13.90 *(2.738)*	190 *(87.5)*	42 *(5.3)*	52 *(9.7)*	29.010 *(97.962)*
75% of Pull at Maximum Power—Ten Hours 7th (B2) Gear											
85.37 *(63.66)*	5354 *(23.82)*	5.98 *(9.62)*	2268	3.73	6.661 *(25.215)*	0.547 *(0.333)*	12.82 *(2.525)*	186 *(85.3)*	36 *(2.1)*	40 *(4.3)*	28.957 *(97.785)*
50% of Pull at Maximum Power—Two Hours 7th (B2) Gear											
57.90 *(43.18)*	3525 *(15.68)*	6.16 *(9.91)*	2206	2.37	5.441 *(20.596)*	0.658 *(0.400)*	10.64 *(2.096)*	183 *(83.9)*	36 *(2.2)*	41 *(5.0)*	29.000 *(97.929)*
50% of Pull at Reduced Engine Speed—Two Hours 12th (B4) Gear											
57.91 *(43.18)*	3525 *(15.68)*	6.16 *(9.92)*	1397	2.33	4.103 *(15.532)*	0.496 *(0.302)*	14.11 *(2.780)*	181 *(82.8)*	37 *(2.8)*	41 *(5.0)*	28.995 *(97.912)*
MAXIMUM POWER IN SELECTED GEARS											
78.41 *(58.47)*	12858 *(57.19)*	2.29 *(3.68)*	2256	14.83	2nd (A2) Gear			183 *(83.9)*	35 *(1.7)*	39 *(3.9)*	29.030 *(98.030)*
99.11 *(73.91)*	12821 *(56.14)*	2.94 *(4.74)*	2201	13.60	3rd (A3) Gear			187 *(85.8)*	36 *(2.2)*	40 *(4.4)*	29.040 *(98.064)*
106.83 *(79.66)*	10073 *(44.80)*	3.98 *(6.40)*	2200	8.10	4th (A4) Gear			189 *(86.9)*	38 *(3.3)*	42 *(5.6)*	29.050 *(98.097)*
106.47 *(79.39)*	9032 *(40.18)*	4.42 *(7.11)*	2203	6.88	5th (B1) Gear			190 *(87.5)*	39 *(3.9)*	44 *(6.7)*	29.050 *(98.097)*
107.27 *(79.99)*	7574 *(33.69)*	5.31 *(8.55)*	2200	5.41	6th (C1) Gear			190 *(87.5)*	40 *(4.4)*	47 *(8.3)*	29.050 *(98.097)*
108.77 *(81.11)*	7139 *(31.76)*	5.71 *(9.20)*	2200	5.11	7th (B2) Gear			189 *(87.2)*	40 *(4.4)*	45 *(7.2)*	29.050 *(98.097)*
108.29 *(80.75)*	5937 *(26.41)*	6.84 *(11.01)*	2201	4.20	8th (C2) Gear			190 *(87.5)*	40 *(4.4)*	47 *(8.3)*	29.050 *(98.097)*
106.78 *(79.62)*	5310 *(23.62)*	7.54 *(12.14)*	2199	3.50	9th (B3) Gear			190 *(87.5)*	40 *(4.4)*	48 *(8.9)*	29.040 *(98.064)*
105.13 *(78.40)*	4724 *(21.01)*	8.35 *(13.43)*	2199	3.20	10th (D1) Gear			190 *(87.5)*	40 *(4.4)*	48 *(8.9)*	29.040 *(98.064)*

Department of Agricultural Engineering

Dates of Test: March 31 to April 12, 1983

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8416 **Fuel weight** 7.007 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 3.977 gal *(15.056 l)* **Drained from motor** 3.739 gal *(14.152 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 42.5 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG6466T242624* **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 4.57" x 4.75" *(116.0 mm x 120.6 mm)* **Compression ratio** 15.8 to 1 **Displacement** 466 cu in *(7634 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements with prestrainer **Muffler** vertical **Cooling medium temperature control** two thermostats and variable speed fan.

CHASSIS: Type standard with duals **Serial No.** *RW4250H002243* **Tread width** rear 60" *(1524 mm)* to 114" *(2890 mm)* front 56" *(1420 mm)* to 82.6" *(2099 mm)* **Wheel base** 106.7" *(2710 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 29.5" *(749 mm)* Vertical distance above roadway 45.0" *(1143 mm)* Horizontal distance from center of rear wheel tread 0.4" *(10 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 2.1 *(3.4)* second 2.6 *(4.3)* third 3.4 *(5.5)* fourth 4.4 *(7.0)* fifth 4.8 *(7.7)* sixth 5.7 *(9.1)* seventh 6.1 *(9.8)* eighth 7.2 *(11.6)* ninth 7.9 *(12.7)* tenth 8.7 *(14.0)* eleventh 9.4 *(15.1)* twelfth 10.1 *(16.2)* thirteenth 11.1 *(17.8)* fourteenth 11.9 *(19.2)* fifteenth 14.4 *(23.2)* sixteenth 18.3 *(29.4)* reverse 3.3 *(5.4)*, 4.2 *(6.8)*, 7.7 *(12.3)*, 9.1 *(14.6)*, 9.7 *(15.7)*, 11.5 *(18.6)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 146" *(3.7 m)* left 146" *(3.7 m)* (on concrete surface without brake) right 157" *(4.0 m)* left 157" *(4.0 m)* **Turning space diameter** (on concrete surface with brake applied) right 302" *(7.67 m)* left 302" *(7.67 m)* (on concrete surface without brake) right 338" *(8.58 m)* left 338" *(8.58 m)* **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm.

LUGGING ABILITY IN 7th (B2) GEAR

Crankshaft Speed rpm	2200	1981	1766	1543	1327	1104
Pull—lbs *(kN)*	7139 *(31.76)*	8148 *(36.24)*	9059 *(40.30)*	9548 *(42.47)*	9282 *(41.29)*	9090 *(40.43)*
Increase in Pull %	0	14	27	34	30	27
Power—Hp *(kW)*	108.77 *(81.11)*	110.51 *(82.41)*	108.76 *(81.10)*	98.85 *(73.71)*	83.42 *(62.21)*	68.09 *(50.78)*
Speed—Mph *(km/h)*	5.71 *(9.20)*	5.09 *(8.19)*	4.50 *(7.25)*	3.88 *(6.25)*	3.37 *(5.42)*	2.81 *(4.52)*
Slip %	5.11	6.01	6.74	7.89	7.03	7.03

TRACTOR SOUND LEVEL WITH CAB	2000 RPM dB(A)	2200 RPM dB(A)
Maximum Available Power—Two Hours	74.0	74.0
75% of Pull at Maximum Power—Ten Hours		73.5
50% of Pull at Maximum Power—Two Hours		74.0
50% of Pull at Reduced Engine Speed—Two Hours		72.0
Bystander in 16th (D4) gear		87.0

SUPPLEMENTARY TESTS
POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—912 rpm)								
123.06 *(91.77)*	2001	7.448 *(28.194)*	0.424 *(0.258)*	16.52 *(3.255)*	188 *(86.7)*	66 *(18.9)*	75 *(24.1)*	28.955 *(97.777)*

DRAWBAR PERFORMANCE AT 2000 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (B2) Gear											
110.04 *(82.05)*	8006 *(35.61)*	5.15 *(8.29)*	1999	5.79	7.546 *(28.565)*	0.481 *(0.292)*	14.58 *(2.873)*	191 *(88.1)*	42 *(5.3)*	51 *(10.3)*	28.960 *(97.794)*
MAXIMUM POWER IN SELECTED GEAR											
110.90 *(82.70)*	8082 *(35.95)*	5.15 *(8.28)*	1999	5.86	7th (B2) Gear			191 *(88.1)*	40 *(4.4)*	46 *(7.8)*	29.050 *(98.097)*

TIRES, BALLAST AND WEIGHT		**With Ballast**	**Without Ballast**
Rear Tires	—No., size, ply & psi *(kPa)*	Four 18.4-38; 6; 12 *(85)*	Four 18.4-38; 6; 12 *(85)*
Ballast	—Liquid (each inner)	737 lb *(335 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.00-16; 8; 36 *(250)*	Two 11.00-16; 8; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	73 lb *(33 kg)*	None
Height of Drawbar		24 in *(610 mm)*	24 in *(610 mm)*
Static Weight with Operator	—Rear	11145 lb *(5055 kg)*	9670 lb *(4386 kg)*
	—Front	3845 lb *(1744 kg)*	3700 lb *(1678 kg)*
	—Total	14990 lb *(6799 kg)*	13370 lb *(6064 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 119°F *(48.5°C)*. Nine gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1475**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 4250 Quadrange Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1476
JOHN DEERE 4450 QUADRANGE DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)								
140.33 *(104.64)*	2200	8.580 *(32.479)*	0.428 *(0.261)*	16.36 *(3.222)*	202 *(94.5)*	67 *(19.7)*	74 *(23.6)*	28.923 *(97.670)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
121.61 *(90.68)*	2242	7.762 *(29.382)*	0.447 *(0.272)*	15.67 *(3.086)*	197 *(91.7)*	67 *(19.4)*	74 *(23.6)*	....
0.00 *(0.00)*	2329	2.466 *(9.335)*	....	....	176 *(79.7)*	68 *(19.7)*	74 *(23.1)*	....
61.96 *(46.20)*	2284	5.065 *(19.173)*	0.573 *(0.348)*	12.23 *(2.410)*	186 *(85.8)*	70 *(20.8)*	76 *(24.4)*	....
139.75 *(104.21)*	2200	8.559 *(32.399)*	0.429 *(0.261)*	16.33 *(3.216)*	201 *(93.9)*	70 *(20.8)*	78 *(25.3)*	....
31.22 *(23.28)*	2302	3.840 *(14.536)*	0.862 *(0.524)*	8.13 *(1.602)*	180 *(82.2)*	68 *(20.0)*	76 *(24.2)*	....
92.10 [illegible]	2264	6.452 *(24.423)*	0.491 *(0.299)*	14.27 *(2.812)*	192 *(88.9)*	69 *(20.6)*	76 *(24.4)*	....
Av 74.44 **Av** *(55.51)*	2270	5.891 *(21.343)*	0.536 *(0.326)*	13.88 *(2.377)*	189 *(87.1)*	68 *(20.2)*	76 *(24.2)*	28.937 *(97.715)*

DRAWBAR PERFORMANCE WITH BIAS PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (C1) Gear											
120.11 *(89.56)*	8954 *(39.83)*	5.03 *(8.10)*	2201	5.02	8.331 *(31.536)*	0.486 *(0.296)*	14.42 *(2.840)*	201 *(93.6)*	48 *(8.6)*	59 *(15.0)*	28.710 *(96.949)*
75% of Pull at Maximum Power—Ten Hours 6th (C1) Gear											
97.87 *(72.98)*	7022 *(31.24)*	5.23 *(8.41)*	2260	4.00	7.278 *(27.552)*	0.521 *(0.317)*	13.45 *(2.649)*	193 *(89.7)*	51 *(10.3)*	54 *(12.0)*	28.264 *(95.443)*
50% of Pull at Maximum Power—Two Hours 6th (C1) Gear											
67.12 *(50.05)*	4682 *(20.83)*	5.38 *(8.65)*	2292	2.65	5.780 *(21.879)*	0.603 *(0.367)*	11.61 *(2.288)*	187 *(86.1)*	36 *(2.2)*	38 *(3.3)*	28.550 *(96.409)*
50% of Pull at Reduced Engine Speed—Two Hours 11th (C3) Gear											
67.16 *(50.08)*	4682 *(20.83)*	5.38 *(8.66)*	1388	2.58	4.620 *(17.490)*	0.482 *(0.293)*	14.54 *(2.863)*	179 *(81.4)*	36 *(2.2)*	39 *(3.6)*	28.550 *(96.409)*
MAXIMUM POWER IN SELECTED GEARS											
111.39 *(83.07)*	15069 *(67.03)*	2.77 *(4.46)*	2225	14.74	3rd (A3) Gear			196 *(91.1)*	43 *(6.1)*	50 *(10.0)*	28.830 *(97.355)*
121.23 *(90.40)*	12134 *(53.97)*	3.75 *(6.03)*	2202	7.64	4th (A4) Gear			198 *(92.2)*	43 *(6.1)*	52 *(11.1)*	28.820 *(97.321)*
124.0[illegible] *(92.47)*	11152 *(49.60)*	4.17 *(6.71)*	2202	6.64	5th (B1) Gear			201 *(93.9)*	44 *(6.7)*	53 *(11.7)*	28.820 *(97.321)*
125.18 *(93.35)*	9363 *(41.65)*	5.01 *(8.07)*	2200	5.25	6th (C1) Gear			203 *(94.7)*	45 *(7.2)*	54 *(12.2)*	28.810 *(97.287)*
123.61 *(92.18)*	8624 *(38.36)*	5.38 *(8.65)*	2200	4.95	7th (B2) Gear			202 *(94.4)*	45 *(7.2)*	54 *(12.2)*	28.800 *(97.253)*
123.36 *(91.99)*	7201 *(32.03)*	6.42 *(10.34)*	2199	3.97	8th (C2) Gear			202 *(94.2)*	45 *(7.2)*	55 *(12.8)*	28.790 *(97.220)*
124.38 *(92.75)*	6549 *(29.13)*	7.12 *(11.46)*	2201	3.59	9th (B3) Gear			202 *(94.2)*	45 *(7.2)*	55 *(12.8)*	28.780 *(97.186)*
122.93 *(91.67)*	5863 *(26.08)*	7.86 *(12.65)*	2201	3.12	10th (D1) Gear			200 *(93.3)*	46 *(7.8)*	55 *(12.8)*	28.770 *(97.152)*
123.35 *(91.98)*	5458 *(24.28)*	8.48 *(13.64)*	2200	2.37	11th (C3) Gear			202 *(94.2)*	46 *(7.8)*	55 *(12.8)*	28.760 *(97.118)*

Department of Agricultural Engineering

Dates of Test: April 4-25, 1983

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8416 **Fuel weight** 7.007 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 3.988 gal *(15.097 l)* **Drained from motor** 3.670 gal *(13.894 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 45.5 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG6466T242728* **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 4.57" x 4.75" *(116.0 mm x 120.6 mm)* **Compression ratio** 15.8 to 1 **Displacement** 466 cu in *(7636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements and prestrainer **Muffler** vertical **Cooling medium temperature control** two thermostats and variable speed fan.

CHASSIS: Type standard with duals **Serial No.** *RW4450H004234* **Tread width** rear 60.0" *(1524 mm)* to 130" *(3300 mm)* front 58" *(1470 mm)* to 82.6" *(2099 mm)* **Wheel base** 106.7" *(2710 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 28.0" *(711 mm)* Vertical distance above roadway 41.9" *(1064 mm)* Horizontal distance from center of rear wheel tread 0.5" *(13 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 2.0 *(3.2)* second 2.5 *(4.0)* third 3.3 *(5.3)* fourth 4.1 *(6.7)* fifth 4.6 *(7.3)* sixth 5.4 *(8.7)* seventh 5.8 *(9.3)* eighth 6.8 *(11.0)* ninth 7.5 *(12.1)* tenth 8.3 *(13.4)* eleventh 8.9 *(14.4)* twelfth 9.5 *(15.3)* thirteenth 10.5 *(16.9)* fourteenth 11.3 *(18.2)* fifteenth 13.7 *(22.1)* sixteenth 17.3 *(27.9)* reverse 3.2 *(5.1)*, 4.0 *(6.5)*, 7.3 *(11.8)*, 8.7 *(13.9)*, 9.2 *(14.8)*, 10.9 *(17.6)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 146" *(3.7 m)* left 146" *(3.7 m)* (on concrete surface without brake) right 157" *(4.0 m)* left 157" *(4.0 m)* **Turning space diameter** (on concrete surface with brake applied) right 302" *(7.67 m)* left 302" *(7.67 m)* (on concrete surface without brake) right 338" *(8.58 m)* left 338" *(8.58 m)* **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 117°F *(47.2°C)*. Nine gears were chosen between 15% slip (bias ply tires), front end stability limit (radial ply tires) and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1476.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

LUGGING ABILITY IN 6th (C1) GEAR

Crankshaft Speed rpm	2200	1984	1763	1538	1323	1098
Pull—lbs *(kN)*	9363 *(41.65)*	10696 *(47.58)*	11602 *(51.61)*	12045 *(53.58)*	11922 *(53.03)*	10948 *(48.70)*
Increase in Pull %	0	14	24	29	27	17
Power—Hp *(kW)*	125.18 *(93.35)*	127.53 *(95.10)*	122.05 *(91.02)*	110.03 *(82.05)*	93.85 *(69.99)*	72.06 *(53.74)*
Speed—Mph *(km/h)*	5.01 *(8.07)*	4.47 *(7.20)*	3.95 *(6.35)*	3.43 *(5.51)*	2.95 *(4.75)*	2.47 *(3.97)*
Slip %	5.25	6.28	7.14	7.57	7.28	6.57

TRACTOR SOUND LEVEL WITH CAB	Radial Ply 2000 RPM dB(A)	Radial Ply 2200 RPM dB(A)	Bias Ply 2200 RPM dB(A)
Maximum Available Power—Two Hours	73.0	74.0	73.5
75% of Pull at Maximum Power—Ten Hours			73.5
50% of Pull at Maximum Power—Two Hours			75.0
50% of Pull at Reduced Engine Speed—Two Hours			71.5
Bystander in 16th (D4) gear			86.5

SUPPLEMENTARY TESTS
DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES. POWER AND FUEL CONSUMPTION AT 2200 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (C1) Gear											
124.15 *(92.58)*	8660 *(38.52)*	5.38 *(8.65)*	2199	3.20	8.456 *(32.009)*	0.477 *(0.290)*	14.68 *(2.892)*	204 *(95.6)*	48 *(8.9)*	60 *(15.6)*	28.945 *(97.743)*
MAXIMUM POWER IN SELECTED GEARS											
99.94 *(74.53)*	16278 *(72.41)*	2.30 *(3.71)*	2249	12.52	2nd (A2) Gear			192 *(88.9)*	44 *(6.7)*	51 *(10.6)*	28.940 *(97.726)*
126.34 *(94.21)*	8823 *(39.25)*	5.37 *(8.64)*	2201	3.28	6th (C1) Gear			201 *(93.9)*	46 *(7.8)*	55 *(12.8)*	28.960 *(97.794)*

POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—911 rpm)								
142.27 *(106.09)*	2000	8.327 *(31.521)*	0.410 *(0.250)*	17.08 *(3.366)*	201 *(93.7)*	68 *(19.8)*	75 *(23.7)*	28.925 *(97.675)*

DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (C1) Gear											
127.24 *(94.88)*	9822 *(43.69)*	4.86 *(7.82)*	1999	3.80	8.349 *(31.604)*	0.460 *(0.280)*	15.24 *(3.002)*	206 *(96.4)*	48 *(8.9)*	63 *(16.9)*	28.920 *(97.659)*
MAXIMUM POWER IN SELECTED GEAR											
128.68 *(95.95)*	9930 *(44.17)*	4.86 *(7.82)*	2000	3.68	6th (C1) Gear			201 *(93.9)*	47 *(8.3)*	57 *(13.9)*	28.960 *(97.794)*

John Deere 4450 Quadrange Diesel

TIRES, BALLAST AND WEIGHT		Bias Ply Tires With Ballast	Bias Ply Tires Without Ballast	Radial Ply Tires With Ballast	Radial Ply Tires Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 18.4-38; 6; 14 *(95)*	Four 18.4-38; 6; 14 *(95)*	Inner Two 18.4R38; 8; 12 *(85)* Outer Two 18.4R38; 6; 12 *(85)*	Inner Two 18.4R38; 8; 12 *(85)* Outer Two 18.4R38; 6; 12 *(85)*
Ballast	—Liquid (each inner)	1140 lb *(517 kg)*	None	953 lb *(432 kg)*	None
	—Cast Iron (each)	None	None	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.00-16; 8; 40 *(275)*	Two 11.00-16; 8; 40 *(275)*	Two 11.00-16; 8; 40 *(275)*	Two 11.00-16; 8; 40 *(275)*
Ballast	—Liquid (each)	None	None	None	None
	—Cast Iron (each)	50 lb *(23 kg)*	None	50 lb *(23 kg)*	None
Height of Drawbar		21.5 in *(545 mm)*	21.5 in *(545 mm)*	20 in *(510 mm)*	20 in *(510 mm)*
Static Weight with Operator	—Rear	12880 lb *(5842 kg)*	10600 lb *(4808 kg)*	12945 lb *(5872 kg)*	11040 lb *(5008 kg)*
	—Front	3800 lb *(1724 kg)*	3700 lb *(1678 kg)*	3815 lb *(1730 kg)*	3715 lb *(1685 kg)*
	—Total	16680 lb *(7566 kg)*	14300 lb *(6486 kg)*	16760 lb *(7602 kg)*	14755 lb *(669[illegible] kg)*

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1477
JOHN DEERE 4650 QUADRANGE DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—998 rpm)								
165.70 (123.56)	2200	9.750 (36.908)	0.412 (0.251)	16.99 (3.348)	188 (86.9)	63 (17.3)	75 (24.0)	28.903 (97.602)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
143.45 (106.97)	2240	8.823 (33.399)	0.431 (0.262)	16.26 (3.203)	184 (84.2)	54 (18.1)	76 (24.4)	....
0.00 (0.00)	2331	2.509 (9.498)	....	....	172 (77.8)	63 (17.2)	74 (23.1)	....
73.12 (54.53)	2287	5.658 (21.342)	0.540 (0.329)	12.97 (2.555)	180 (82.5)	64 (17.8)	76 (24.4)	....
164.75 (122.85)	2200	9.722 (36.802)	0.414 (0.252)	16.95 (3.338)	190 (87.8)	66 (18.6)	76 (24.7)	....
36.96 (27.56)	2312	4.041 (15.297)	0.766 (0.466)	9.15 (1.802)	174 (78.9)	66 (18.9)	78 (25.6)	....
108.52 (80.92)	2262	7.162 (27.111)	0.465 (0.281)	15.15 (2.985)	182 (83.6)	66 (18.6)	78 (25.3)	....
Av 87.80 Av (65.47)	2272	6.316 (23.909)	0.504 (0.307)	13.90 (2.738)	180 (82.4)	65 (18.2)	76 (24.6)	28.895 (97.564)

DRAWBAR PERFORMANCE WITH BIAS PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (B2) Gear											
142.51 (106.12)	9807 (43.62)	5.44 (8.76)	2200	5.00	9.614 (36.393)	0.473 (0.288)	14.80 (2.916)	190 (87.8)	53 (11.4)	60 (15.6)	28.750 (97.084)
75% of Pull at Maximum Power—Ten Hours 7th (B2) Gear											
113.49 (84.63)	7495 (33.34)	5.68 (9.14)	2261	3.55	8.219 (31.113)	0.508 (0.309)	13.81 (2.720)	187 (86.1)	54 (11.9)	60 (15.5)	28.785 (97.203)
50% of Pull at Maximum Power—Two Hours 7th (B2) Gear											
77.34 (57.68)	4997 (22.23)	5.80 (9.34)	2285	2.43	6.386 (24.172)	0.579 (0.352)	12.11 (2.386)	182 (83.1)	52 (10.8)	56 (13.3)	28.755 (97.101)
50% of Pull at Reduced Engine Speed—Two Hours 11th (C3) Gear											
77.36 (57.69)	4997 (22.23)	5.81 (9.34)	1367	2.39	5.244 (19.851)	0.475 (0.289)	14.75 (2.906)	185 (84.7)	51 (10.3)	54 (12.2)	28.755 (97.101)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
100.48 (74.92)	16814 (74.79)	2.24 (3.61)	2262	14.92	2nd (A2) Gear	185 (84.7)	46 (8.9)	52 (11.1)	28.790 (97.220)
135.22 (100.84)	15548 (69.16)	3.26 (5.25)	2202	10.57	3rd (A3) Gear	189 (87.2)	48 (8.9)	53 (11.7)	28.790 (97.220)
140.97 (105.12)	12591 (56.01)	4.20 (6.76)	2201	6.91	4th (B1) Gear	190 (87.5)	49 (9.4)	54 (12.2)	28.800 (97.253)
142.42 (106.20)	12365 (55.00)	4.32 (6.95)	2200	6.75	5th (A4) Gear	190 (87.8)	49 (9.4)	55 (12.8)	28.800 (97.253)
142.31 (106.12)	10662 (47.42)	5.01 (8.06)	2200	5.51	6th (C1) Gear	190 (87.8)	50 (10.0)	56 (13.3)	28.810 (97.287)
144.92 (108.07)	9993 (44.45)	5.44 (8.75)	2201	4.96	7th (B2) Gear	190 (87.5)	50 (10.0)	57 (13.9)	28.800 (97.253)
145.38 (108.56)	8464 (37.65)	6.45 (10.38)	2202	4.08	8th (C2) Gear	190 (87.8)	51 (10.6)	57 (13.9)	28.790 (97.220)
142.54 (106.29)	6780 (30.16)	7.88 (12.69)	2201	3.18	9th (B3) Gear	190 (87.5)	52 (11.1)	58 (14.4)	28.780 (97.186)
140.85 (105.03)	6346 (28.23)	8.32 (13.40)	2201	3.10	10th (D1) Gear	190 (87.8)	52 (11.1)	59 (15.0)	28.770 (97.152)

Department of Agricultural Engineering

Dates of Test: April 7-26, 1983

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8417 **Fuel weight** 7.008 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 4.761 gal *(18.022 l)* **Drained from motor** 4.577 gal *(17.324 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 43.0 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** *RG6466A242531* **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 4.57" × 4.75" *(116.0 mm × 120.6 mm)* **Compression ratio** 15.8 to 1 **Displacement** 466 cu in *(7636 ml)* **Starting system** 12 volt **Lubrication pressure Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements and prestrainer **Muffler** vertical **Cooling medium temperature control** three thermostats and variable speed fan.

CHASSIS: Type standard with duals **Serial No.** *RW4650H002529* **Tread width** rear 63" *(1600 mm)* to 130" *(3300 mm)* front 60.2" *(1530 mm)* to 86.3" *(2192 mm)* **Wheel base** 118.5" *(3010 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 31.5" *(800 mm)* Vertical distance above roadway 45.3" *(1151 mm)* Horizontal distance from center of rear wheel tread 0.3" *(8 mm)* to the right **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph** *(km/h)* first 2.0 *(3.2)* second 2.6 *(4.1)* third 3.7 *(5.9)* fourth 4.5 *(7.2)* fifth 4.6 *(7.4)* sixth 5.3 *(8.5)* seventh 5.7 *(9.2)* eighth 6.7 *(10.8)* ninth 8.2 *(13.1)* tenth 8.6 *(13.8)* eleventh 9.6 *(15.4)* twelfth 10.4 *(16.7)* thirteenth 10.9 *(17.5)* fourteenth 12.2 *(19.6)* fifteenth 15.5 *(25.0)* sixteenth 19.7 *(31.7)* reverse 3.8 *(6.1)*, 4.8 *(7.8)*, 8.5 *(13.7)*, 10.0 *(16.1)* 10.8 *(17.4)* 12.7 *(20.4)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 165" *(4.2 m)* left 165" *(4.2 m)* (on concrete surface without brake) right 181" *(4.6 m)* left 181" *(4.6 m)* **Turning space diameter** (on concrete surface with brake applied) right 346" *(8.79 m)* left 346" *(8.79 m)* (on concrete surface without brake) right 380" *(9.65 m)* left 380" *(9.65 m)* **Power take-off** 998 rpm at 2200 engine rpm.

REPAIRS and ADJUSTMENTS: During preliminary PTO tests, it was determined that there was a misaligned gasket on the intake manifold. This gasket was replaced and test continued.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 127°F *(52.8°C)*. Nine gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1477**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

LUGGING ABILITY IN 7th (B2) GEAR

Crankshaft Speed rpm	2201	1980	1761	1540	1320	1090
Pull—lbs (kN)	9993 (44.45)	11346 (50.47)	12282 (54.63)	13091 (58.23)	13200 (58.72)	11542 (51.34)
Increase in Pull %	0	14	23	31	32	16
Power—Hp (kW)	144.92 (108.07)	146.68 (109.38)	140.21 (104.56)	129.78 (96.77)	112.14 (83.62)	81.91 (61.08)
Speed—Mph (km/h)	5.44 (8.75)	4.85 (7.80)	4.28 (6.89)	3.72 (5.98)	3.19 (5.13)	2.66 (4.28)
Slip %	4.96	5.90	6.68	7.13	7.13	6.21

TRACTOR SOUND LEVEL WITH CAB	Radial Ply 2000 RPM dB(A)	Radial Ply 2200 RPM dB(A)	Bias Ply 2200 RPM dB(A)
Maximum Available Power—Two Hours	73.0	74.0	73.0
75% of Pull at Maximum Power—Ten Hours			73.5
50% of Pull at Maximum Power—Two Hours			73.5
50% of Pull at Reduced Engine Speed—Two Hours			72.0
Bystander in 16th (D4) gear			87.5

SUPPLEMENTARY TESTS
DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES
POWER AND FUEL CONSUMPTION AT 2200 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (B2) Gear											
143.28 (106.85)	9371 (41.68)	5.73 (9.23)	2201	2.09	9.596 (36.325)	0.469 (0.285)	14.93 (2.941)	190 (87.8)	52 (10.8)	67 (19.2)	28.620 (96.645)
MAXIMUM POWER IN SELECTED GEARS											
117.15 (87.36)	18931 (84.21)	2.32 (3.73)	2246	13.21	2nd (A2) Gear			187 (85.8)	47 (8.3)	56 (13.3)	28.680 (96.848)
147.71 (110.15)	9673 (43.03)	5.73 (9.22)	2201	2.22	7th (B2) Gear			190 (87.8)	49 (9.4)	59 (15.0)	28.670 (96.814)

POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—One Hour (PTO Speed—908 rpm)								
167.22 (124.70)	2000	9.374 (35.484)	0.393 (0.239)	17.84 (3.514)	187 (85.9)	63 (17.4)	75 (23.9)	28.900 (97.591)

DRAWBAR PERFORMANCE WITH RADIAL PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (B2) Gear											
148.33 (110.61)	10712 (47.65)	5.19 (8.36)	2001	2.39	9.507 (35.988)	0.449 (0.273)	15.60 (3.074)	193 (89.2)	56 (13.1)	73 (22.8)	28.535 (96.358)
MAXIMUM POWER IN SELECTED GEAR											
150.79 (112.44)	10906 (48.51)	5.18 (8.34)	1999	2.48	7th (B2) Gear			192 (88.6)	50 (10.0)	62 (16.7)	28.650 (96.747)

TIRES, BALLAST AND WEIGHT		Bias Ply Tires With Ballast	Bias Ply Tires Without Ballast	Radial Ply Tires With Ballast	Radial Ply Tires Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Four 20.8-38; 10; 14 (95)	Four 20.8-38; 10; 14 (95)	Four 20.8R38; 10; 12 (83)	Four 20.8R38; 10; 12 (83)
Ballast	—Liquid (each inner)	752 lb (341 kg)	None	520 lb (236 kg)	None
	—Cast Iron (each)	None	None	None	None
Front Tires	—No., size, ply & psi (kPa)	Two 14L-16.1; 10; 44 (305)	Two 14L-16.1; 10; 44 (305)	Two 14L-16.1; 10; 44 (305)	Two 14L-16.1; 10; 44 (305)
Ballast	—Liquid (each)	None	None	None	None
	—Cast Iron (each)	55 lb (25 kg)	None	55 lb (25 kg)	None
Height of Drawbar		24.5 in (620 mm)	24.5 in (620 mm)	24 in (610 mm)	24 in (610 mm)
Static Weight with Operator	—Rear	14705 lb (6670 kg)	13200 lb (5988 kg)	14680 lb (6659 kg)	13640 lb (6187 kg)
	—Front	4910 lb (2227 kg)	4800 lb (2177 kg)	4910 lb (2227 kg)	4800 lb (2177 kg)
	—Total	19615 lb (8897 kg)	18000 lb (8165 kg)	19590 lb (8886 kg)	18440 lb (8364 kg)

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Irvin T. Omtvedt, Dean and Director

John Deere 4650 Quadrange Diesel

NEBRASKA TRACTOR TEST 1478—MASSEY FERGUSON 254 DIESEL
12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—625 rpm)								
43.36 *(32.33)*	2250	2.721 *(10.300)*	0.440 *(0.268)*	15.93 *(3.139)*	183 *(84.1)*	56 *(13.6)*	75 *(23.9)*	29.013 *(97.974)*
Standard Power Take-off Speed (540 rpm)—One Hour								
40.71 *(30.36)*	1944	2.456 *(9.297)*	0.423 *(0.257)*	16.58 *(3.266)*	184 *(84.2)*	56 *(13.3)*	75 *(23.8)*	28.990 *(97.895)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
37.80 *(28.19)*	2307	2.367 *(8.960)*	0.439 *(0.267)*	15.97 *(3.146)*	181 *(82.8)*	54 *(12.2)*	74 *(23.6)*	....
0.00 *(0.00)*	2380	0.762 *(2.886)*	....	....	178 *(80.8)*	56 *(13.6)*	75 *(23.9)*	....
19.22 *(14.33)*	2345	1.464 *(5.542)*	0.534 *(0.325)*	13.13 *(2.586)*	178 *(81.4)*	55 *(12.8)*	75 *(23.9)*	....
43.31 *(32.30)*	2250	2.740 *(10.372)*	0.445 *(0.270)*	15.81 *(3.114)*	184 *(84.2)*	56 *(13.3)*	76 *(24.4)*	....
9.70 *(7.23)*	2370	1.100 *(4.164)*	0.795 *(0.484)*	8.82 *(1.736)*	178 *(80.8)*	56 *(13.1)*	74 *(23.6)*	....
28.55 *(21.29)*	2324	1.884 *(7.132)*	0.462 *(0.281)*	15.16 *(2.985)*	179 *(81.7)*	55 *(12.8)*	74 *(23.6)*	....
Av 23.10 **Av *(17.23)***	**2329**	**1.719** ***(6.507)***	**0.522** ***(0.317)***	**13.43** ***(2.648)***	**180** ***(81.9)***	**55** ***(12.9)***	**75** ***(23.8)***	**28.950** ***(97.760)***

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th Gear											
33.43 *(24.93)*	2160 *(9.61)*	5.80 *(9.34)*	2250	7.18	2.604 *(9.858)*	0.546 *(0.332)*	12.84 *(2.529)*	184 *(84.4)*	54 *(12.2)*	58 *(14.4)*	28.835 *(97.371)*
75% of Pull at Maximum Power—Ten Hours 8th Gear											
27.49 *(20.50)*	1700 *(7.56)*	6.07 *(9.76)*	2303	5.28	2.197 *(8.318)*	0.560 *(0.341)*	12.51 *(2.465)*	184 *(84.3)*	55 *(12.6)*	59 *(15.2)*	28.965 *(97.810)*
50% of Pull at Maximum Power—Two Hours 8th Gear											
18.93 *(14.12)*	1133 *(5.04)*	6.27 *(10.09)*	2332	3.39	1.784 *(6.752)*	0.660 *(0.402)*	10.62 *(2.091)*	184 *(84.2)*	51 *(10.6)*	53 *(11.7)*	28.820 *(97.321)*
50% of Pull at Reduced Engine Speed—Two Hours 10th Gear											
18.94 *(14.12)*	1133 *(5.04)*	6.27 *(10.09)*	1491	3.18	1.391 *(5.267)*	0.515 *(0.313)*	13.61 *(2.681)*	183 *(83.6)*	58 *(14.2)*	62 *(16.4)*	28.790 *(97.220)*
MAXIMUM POWER IN SELECTED GEARS											
27.57 *(20.56)*	3844 *(17.10)*	2.69 *(4.33)*	2303	14.80	5th Gear			184 *(84.2)*	58 *(14.4)*	65 *(18.3)*	28.760 *(97.118)*
33.41 *(24.92)*	3650 *(16.23)*	3.43 *(5.53)*	2251	13.52	6th Gear			185 *(85.0)*	53 *(11.7)*	56 *(13.3)*	28.830 *(97.355)*
34.18 *(25.49)*	2767 *(12.31)*	4.63 *(7.46)*	2250	9.52	7th Gear			185 *(84.7)*	52 *(11.1)*	55 *(12.8)*	28.780 *(97.186)*
35.14 *(26.20)*	2266 *(10.08)*	5.82 *(9.36)*	2251	7.15	8th Gear			185 *(84.7)*	52 *(11.1)*	55 *(12.8)*	28.780 *(97.186)*
32.85 *(24.49)*	1731 *(7.70)*	7.12 *(11.45)*	2249	5.58	9th Gear			185 *(84.7)*	53 *(11.7)*	56 *(13.3)*	28.830 *(97.355)*
32.75 *(24.42)*	1312 *(5.83)*	9.37 *(15.07)*	2249	4.13	10th Gear			185 *(85.0)*	53 *(11.7)*	56 *(13.3)*	28.830 *(97.355)*

Department of Agricultural Engineering

Dates of Test: May 11-23, 1983

Manufacturer: MASSEY FERGUSON S.p.A Landini Division, Via Matteotti 17, 42042 Fabbrico (RE) Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8417 **Fuel weight** 7.008 lbs/gal *(0.840 kg/l)* **Oil SAE** 20-20W **API service classification** SE, SF, CC **To motor** 1.869 gal *(7.076 l)* **Drained from motor** 1.351 gal *(5.115 l)* **Transmission and final drive lubricant** Massey Ferguson Permatran oil **Total time engine was operated** 42.5 hours.

ENGINE: Make Perkins Diesel **Type** three cylinder vertical **Serial No.** CE21899U703041J **Crankshaft** lengthwise **Rated rpm** 2250 **Bore and stroke** 3.6" × 5.0" *(91.4 mm × 127.0 mm)* **Compression ratio** 16.5 to 1 **Displacement** 153 cu in *(2502 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** oil bath with centrifugal precleaner **Oil filter** one full flow paper cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** *2229794* **Tread width** rear 59.1" *(1500 mm)* to 74.8" *(1900 mm)* front 59.0" *(1500 mm)* **Wheel base** 81.1" *(2060 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 33.9" *(860 mm)* Vertical distance above roadway 30.6" *(778 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.0 *(1.6)* second 1.6 *(2.6)* third 2.1 *(3.3)* fourth 2.5 *(4.0)* fifth 3.0 *(4.8)* sixth 3.9 *(6.3)* seventh 5.0 *(8.0)* eighth 6.1 *(9.8)* ninth 7.4 *(11.9)* tenth 9.6 *(15.4)* eleventh 12.4 *(19.9)* twelfth 18.2 *(29.3)* reverse 2.7 *(4.3)*, 4.2 *(6.7)*, 5.3 *(8.6)*, 7.9 *(12.7)* **Clutch** dry disc operated by foot pedal **Brakes** dry disc operated by two foot pedals which can be locked together and hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 144" *(3.66 m)* left 156" *(3.96 m)* (on concrete surface without brake) right 168" *(4.27 m)* left 186" *(4.72 m)* **Turning space diameter** (on concrete surface with brake applied) right 302" *(7.67 m)* left 327" *(8.31 m)* (on concrete surface without brake) right 351" *(8.92 m)* left 387" *(9.83 m)* **Power take-off** 540 rpm at 1944 engine rpm.

LUGGING ABILITY IN 8th GEAR

Crankshaft Speed rpm	2251	2027	1807	1578	1347	1116
Pull—lbs *(kN)*	2266 *(10.08)*	2472 *(11.00)*	2608 *(11.60)*	2733 *(12.16)*	2801 *(12.46)*	2735 *(12.17)*
Increase in Pull %	0	9	15	21	24	21
Power—Hp *(kW)*	35.14 *(26.20)*	34.22 *(25.52)*	31.88 *(23.78)*	29.12 *(21.71)*	25.43 *(18.96)*	20.64 *(15.39)*
Speed—Mph *(km/h)*	5.82 *(9.36)*	5.19 *(8.36)*	4.58 *(7.38)*	4.00 *(6.43)*	3.40 *(5.48)*	2.83 *(4.55)*
Slip %	7.15	7.86	8.73	8.94	9.15	8.73

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	99.0	98.0
75% of Pull at Maximum Power—Ten Hours		98.0
50% of Pull at Maximum Power—Two Hours		97.0
50% of Pull at Reduced Engine Speed—Two Hours		94.5
Bystander in 11th gear		86.0

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th Gear											
33.97 *(25.33)*	2139 *(9.51)*	5.96 *(9.59)*	2250	4.60	2.568 *(9.723)*	0.530 *(0.322)*	13.23 *(2.606)*	184 *(84.4)*	53 *(11.7)*	62 *(16.4)*	28.850 *(97.422)*
MAXIMUM POWER IN SELECTED GEARS											
30.94 *(23.07)*	5279 *(23.48)*	2.20 *(3.54)*	2289	14.85	4th Gear			184 *(84.4)*	58 *(14.4)*	64 *(17.8)*	28.760 *(97.118)*
35.86 *(26.74)*	2261 *(10.06)*	5.95 *(9.57)*	2250	4.74	8th Gear			184 *(84.4)*	52 *(11.1)*	55 *(12.8)*	28.780 *(97.186)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 13.6-28; 6; 20 *(140)*	Two 13.6-28; 6; 20 *(140)*
Ballast	—Liquid (each)	545 lb *(247 kg)*	None
	—Cast Iron (each)	98 lb *(44 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5-20; 8; 20 *(140)*	Two 9.5-20; 8; 20 *(140)*
Ballast	—Liquid (each)	200 lb *(91 kg)*	None
	—Cast Iron (each)	53 lb *(24 kg)*	None
Height of Drawbar		15.5 in *(395 mm)*	15.5 in *(395 mm)*
Static Weight with Operator	—Rear	4515 lb *(2048 kg)*	3230 lb *(1465 kg)*
	—Front	2760 lb *(1252 kg)*	2255 lb *(1023 kg)*
	—Total	7275 lb *(3300 kg)*	5485 lb *(2488 kg)*

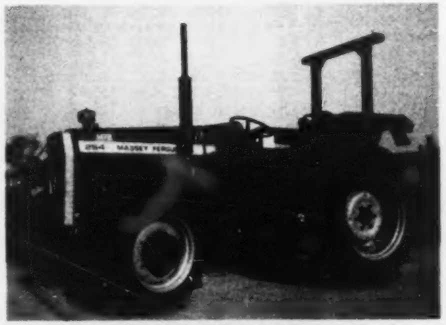
REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 146°F *(63.3°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1478.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Massey Ferguson 254 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1479—MASSEY FERGUSON 274 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—611 rpm)								
55.30 *(41.30)*	2200	3.411 *(12.912)*	0.432 *(0.263)*	16.24 *(3.199)*	186 *(85.6)*	57 *(13.7)*	75 *(24.0)*	28.910 *(97.625)*
Standard Power Take-off Speed (540 rpm)—One Hour								
54.26 *(40.46)*	1944	3.146 *(11.909)*	0.406 *(0.247)*	17.25 *(3.397)*	187 *(86.1)*	56 *(13.1)*	75 *(23.7)*	28.890 *(97.557)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
48.92 *(36.48)*	2286	3.159 *(11.958)*	0.453 *(0.275)*	15.48 *(3.051)*	183 *(83.9)*	56 *(13.6)*	76 *(24.7)*	....
0.00 *(0.00)*	2389	1.164 *(4.406)*	....	....	150 *(65.6)*	58 *(14.7)*	75 *(23.9)*	....
25.04 *(18.67)*	2342	2.080 *(7.874)*	0.582 *(0.354)*	12.04 *(2.371)*	165 *(73.9)*	56 *(13.6)*	77 *(25.0)*	....
55.64 *(41.49)*	2200	3.412 *(12.916)*	0.430 *(0.261)*	16.31 *(3.212)*	187 *(86.1)*	58 *(14.2)*	76 *(24.7)*	....
12.66 *(9.44)*	2364	1.622 *(6.140)*	0.898 *(0.546)*	7.80 *(1.537)*	154 *(67.5)*	56 *(13.3)*	73 *(22.8)*	....
37.14 *(27.70)*	2315	2.581 *(9.770)*	0.487 *(0.296)*	14.39 *(2.835)*	170 *(76.4)*	57 *(13.9)*	74 *(23.3)*	....
Av 29.90 *Av (22.30)*	**2316**	**2.337** *(8.847)*	**0.548** *(0.333)*	**12.80** *(2.521)*	**168** *(75.6)*	**57** *(13.9)*	**75** *(24.1)*	**28.873** *(97.501)*

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th Gear											
46.13 *(34.40)*	2637 *(11.73)*	6.56 *(10.56)*	2200	7.05	3.353 *(12.694)*	0.509 *(0.310)*	13.70 *(2.710)*	189 *(86.9)*	56 *(13.1)*	72 *(21.9)*	28.975 *(97.844)*
75% of Pull at Maximum Power—Ten Hours 8th Gear											
37.31 *(27.83)*	2006 *(8.92)*	6.98 *(11.23)*	2292	5.09	2.947 *(11.154)*	0.553 *(0.337)*	12.66 *(2.495)*	185 *(84.9)*	65 *(18.3)*	78 *(25.5)*	28.802 *(97.260)*
50% of Pull at Maximum Power—Two Hours 8th Gear											
25.51 *(19.02)*	1337 *(5.95)*	7.15 *(11.51)*	2309	3.37	2.408 *(9.115)*	0.662 *(0.402)*	10.59 *(2.087)*	162 *(71.9)*	49 *(9.2)*	59 *(15.0)*	29.040 *(98.064)*
50% of Pull at Reduced Engine Speed—Two Hours 10th Gear											
25.56 *(19.06)*	1337 *(5.95)*	7.17 *(11.54)*	1479	3.20	1.784 *(6.752)*	0.489 *(0.297)*	14.33 *(2.823)*	164 *(73.3)*	53 *(11.4)*	65 *(18.3)*	29.025 *(98.013)*
MAXIMUM POWER IN SELECTED GEARS											
38.60 *(28.78)*	4719 *(20.99)*	3.07 *(4.94)*	2280	14.90	5th Gear			165 *(73.6)*	46 *(7.8)*	55 *(12.8)*	29.040 *(98.064)*
44.02 *(32.83)*	4271 *(19.00)*	3.87 *(6.22)*	2200	13.54	6th Gear			186 *(85.6)*	52 *(11.1)*	66 *(18.9)*	29.000 *(97.929)*
45.61 *(34.01)*	3246 *(14.44)*	5.27 *(8.48)*	2198	8.59	7th Gear			185 *(84.7)*	53 *(11.7)*	64 *(17.8)*	28.990 *(97.895)*
46.76 *(34.87)*	2674 *(11.89)*	6.56 *(10.56)*	2198	7.02	8th Gear			188 *(86.4)*	56 *(13.3)*	72 *(22.2)*	28.970 *(97.827)*
44.79 *(33.40)*	2088 *(9.29)*	8.05 *(12.95)*	2201	5.40	9th Gear			187 *(85.8)*	54 *(12.2)*	68 *(20.0)*	29.000 *(97.929)*

Department of Agricultural Engineering

Dates of Test: May 12-26, 1983

Manufacturer: MASSEY FERGUSON S.p.A Landini Division, Via Matteotti 17, 42042 Fabbrico (RE) Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8417 **Fuel weight** 7.008 lbs/gal *(0.840 kg/l)* **Oil SAE** 20-20W **API service classification** SE, SF, CC **To motor** 1.986 gal *(7.518 l)* **Drained from motor** 1.764 gal *(6.676 l)* **Transmission and final drive lubricant** Massey Ferguson Permatran oil **Total time engine was operated** 44.5 hours.

ENGINE: Make Perkins Diesel **Type** four cylinder vertical **Serial No.** LD22573U840084J **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 3.875" × 5" *(98.4 mm × 127 mm)* **Compression ratio** 16 to 1 **Displacement** 236 cu in *(3865 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** oil bath with centrifugal precleaner **Oil filter** one full flow paper cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** *22111958* **Tread width** rear 59.1" *(1500 mm)* to 75" *(1905 mm)* front 59.5" *(1511 mm)* **Wheel base** 87.5" *(2222 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 36.5" *(928 mm)* Vertical distance above roadway 36.1" *(918 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.1 *(1.8)* second 1.8 *(2.9)* third 2.3 *(3.7)* fourth 2.8 *(4.5)* fifth 3.4 *(5.4)* sixth 4.3 *(7.0)* seventh 5.6 *(9.0)* eighth 6.8 *(11.0)* ninth 8.3 *(13.3)* tenth 10.7 *(17.2)* eleventh 13.8 *(22.2)* twelfth 20.3 *(32.7)* reverse 3.0 *(4.8)*, 4.6 *(7.4)*, 6.0 *(9.6)*, 8.8 *(14.1)* **Clutch** dry disc operated by foot pedal **Brakes** dry disc operated by two foot pedals which can be locked together and hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 169" *(4.29 m)* left 186" *(4.72 m)* (on concrete surface without brake) right 191" *(4.85 m)* left 207" *(5.26 m)* **Turning space diameter** (on concrete surface with brake applied) right 354" *(8.99 m)* left 388" *(9.85 m)* (on concrete surface without brake) right 398" *(10.11 m)* left 430" *(10.92 m)* **Power take-off** 540 rpm at 1944 engine rpm.

LUGGING ABILITY IN 8th GEAR

Crankshaft Speed rpm	2198	1980	1760	1543	1326	1096	880
Pull—lbs *(kN)*	2674 *(11.89)*	2944 *(13.10)*	3143 *(13.98)*	3255 *(14.48)*	3394 *(15.10)*	3414 *(15.19)*	3276 *(14.57)*
Increase in Pull %	0	10	18	22	27	28	23
Power—Hp *(kW)*	46.76 *(34.87)*	45.99 *(34.29)*	43.25 *(32.25)*	39.04 *(29.12)*	34.79 *(25.95)*	28.96 *(21.60)*	22.40 *(16.71)*
Speed—Mph *(km/h)*	6.56 *(10.56)*	5.86 *(9.43)*	5.16 *(8.30)*	4.50 *(7.24)*	3.84 *(6.19)*	3.18 *(5.12)*	2.56 *(4.13)*
Slip %	7.02	7.78	8.65	9.02	9.62	9.50	9.02

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	99.5	99.5
75% of Pull at Maximum Power—Ten Hours		98.5
50% of Pull at Maximum Power—Two Hours		98.0
50% of Pull at Reduced Engine Speed—Two Hours		95.5
Bystander in 11th gear		87.0

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th Gear											
47.02 *(35.06)*	2610 *(11.61)*	6.76 *(10.87)*	2199	5.57	3.389 *(12.829)*	0.505 *(0.307)*	13.88 *(2.733)*	189 *(87.2)*	58 *(14.4)*	76 *(24.2)*	28.930 *(97.692)*
MAXIMUM POWER IN SELECTED GEARS											
42.13 *(31.41)*	6194 *(27.55)*	2.55 *(4.10)*	2269	14.87	4th Gear			168 *(75.3)*	45 *(7.2)*	53 *(11.7)*	29.020 *(97.996)*
47.42 *(35.36)*	2637 *(11.73)*	6.74 *(10.85)*	2198	5.67	8th Gear			185 *(85.0)*	54 *(12.2)*	68 *(20.0)*	29.000 *(97.929)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9-30; 6; 22 *(150)*	Two 16.9-30; 6; 22 *(150)*
Ballast	—Liquid (each)	878 lb *(398 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.2-24; 6; 20 *(140)*	Two 11.2-24; 6; 20 *(140)*
Ballast	—Liquid (each)	225 lb *(102 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		17.5 in *(445 mm)*	17.5 in *(445 mm)*
Static Weight with Operator	—Rear	5240 lb *(2377 kg)*	3485 lb *(1581 kg)*
	—Front	2950 lb *(1338 kg)*	2500 lb *(1134 kg)*
	—Total	8190 lb *(3715 kg)*	5985 lb *(2715 kg)*

274 MASSEY FERGUSON

Massey Ferguson 274 Diesel

REPAIRS and ADJUSTMENTS: The tube in the left rear tire was replaced following the break in period.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 158°F *(70.1°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1479.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1480—MASSEY FERGUSON 294 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—584 rpm)								
67.39 *(50.25)*	2100	3.905 *(14.782)*	0.406 *(0.247)*	17.26 *(3.399)*	190 *(88.0)*	56 *(13.5)*	75 *(23.7)*	28.933 *(97.704)*
Standard Power Take-off Speed (540 rpm)—One Hour								
64.94 *(48.43)*	1944	3.694 *(13.983)*	0.399 *(0.243)*	17.58 *(3.463)*	190 *(87.8)*	59 *(15.0)*	75 *(24.1)*	28.940 *(97.726)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
59.83 *(44.62)*	2192	3.501 *(13.253)*	0.410 *(0.250)*	17.09 *(3.367)*	186 *(85.6)*	59 *(15.0)*	74 *(23.6)*	....
0.00 *(0.00)*	2262	1.053 *(3.986)*	....	....	164 *(73.3)*	58 *(14.2)*	76 *(24.4)*	....
30.39 *(22.66)*	2229	2.174 *(8.229)*	0.501 *(0.305)*	13.98 *(2.754)*	171 *(77.2)*	58 *(14.4)*	74 *(23.6)*	....
67.09 *(50.03)*	2100	3.886 *(14.710)*	0.406 *(0.247)*	17.26 *(3.401)*	189 *(87.2)*	60 *(15.3)*	76 *(24.2)*	....
15.31 *(11.42)*	2244	1.601 *(6.060)*	0.733 *(0.446)*	9.56 *(1.884)*	165 *(73.9)*	60 *(15.3)*	76 *(24.4)*	....
45.21 *(33.71)*	2210	2.778 *(10.316)*	0.431 *(0.262)*	16.28 *(3.206)*	178 *(80.8)*	60 *(15.6)*	75 *(23.9)*	....
Av 36.31 ***Av (27.08)***	**2206**	**2.496** ***(9.448)***	**0.482** ***(0.293)***	**14.53** ***(2.863)***	**175** ***(79.3)***	**58** ***(14.5)***	**75** ***(24.1)***	**28.935** ***(97.709)***

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th Gear											
55.23 *(41.18)*	3594 *(15.98)*	5.76 *(9.28)*	2099	8.76	3.763 *(14.245)*	0.478 *(0.290)*	14.68 *(2.891)*	191 *(88.3)*	53 *(11.4)*	68 *(19.7)*	28.985 *(97.878)*
75% of Pull at Maximum Power—Ten Hours 8th Gear											
44.87 *(33.46)*	2746 *(12.21)*	6.13 *(9.86)*	2196	7.18	3.217 *(12.179)*	0.503 *(0.306)*	13.95 *(2.747)*	177 *(80.3)*	49 *(9.2)*	50 *(10.1)*	28.893 *(97.567)*
50% of Pull at Maximum Power—Two Hours 8th Gear											
30.85 *(23.01)*	1831 *(8.14)*	6.32 *(10.17)*	2211	4.98	2.461 *(9.316)*	0.559 *(0.340)*	12.54 *(2.470)*	174 *(78.6)*	52 *(11.1)*	53 *(11.7)*	28.675 *(96.831)*
50% of Pull at Reduced Engine Speed—Two Hours 10th Gear											
30.89 *(23.03)*	1831 *(8.14)*	6.33 *(10.18)*	1414	4.70	2.104 *(7.966)*	0.478 *(0.290)*	14.68 *(2.891)*	175 *(79.2)*	55 *(12.8)*	57 *(13.6)*	28.625 *(96.662)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
51.44 *(38.36)*	5665 *(25.20)*	3.41 *(5.48)*	2101	14.92	6th Gear	181 *(82.8)*	52 *(11.1)*	54 *(12.2)*	28.690 *(96.882)*
53.94 *(40.22)*	4415 *(19.64)*	4.58 *(7.37)*	2100	11.34	7th Gear	191 *(88.1)*	52 *(11.1)*	64 *(17.8)*	29.010 *(97.962)*
56.28 *(41.97)*	3661 *(16.28)*	5.77 *(9.28)*	2100	8.67	8th Gear	191 *(88.1)*	52 *(11.1)*	63 *(17.2)*	29.010 *(97.962)*
54.60 *(40.71)*	2887 *(12.84)*	7.09 *(11.41)*	2100	6.78	9th Gear	190 *(87.8)*	52 *(11.1)*	65 *(18.3)*	29.000 *(97.929)*
54.90 *(40.94)*	2198 *(9.78)*	9.37 *(15.07)*	2101	5.08	10th Gear	191 *(88.1)*	52 *(11.1)*	66 *(18.9)*	29.000 *(97.929)*

Department of Agricultural Engineering

Dates of Test: May 9-20, 1983

Manufacturer: MASSEY FERGUSON S.p.A., Landini Division, Via Matteotti 17, 42042 Fabbrico (RE) Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8418 **Fuel weight** 7.009 lbs/gal *(0.840 kg/l)* **Oil SAE** 20-20W **API service classification** SE, SF, CC **To motor** 1.684 gal *(6.374 l)* **Drained from motor** 1.529 gal *(5.787 l)* **Transmission and final drive lubricant** Massey Ferguson Permatran oil **Total time engine was operated** 44.5 hours.

ENGINE: Make Perkins Diesel **Type** four cylinder vertical **Serial No.** LF22575U843253J **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** 3.975" × 5" *(101 mm × 127 mm)* **Compression ratio** 16 to 1 **Displacement** 248 cu in *(4067 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** oil bath with centrifugal precleaner **Oil filter** one full flow cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** *2236220* **Tread width** rear 61" *(1549 mm)* to 81" *(2057 mm)* front 61.5" *(1562 mm)* **Wheel base** 87.25" *(2216 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 34.9" *(886 mm)* Vertical distance above roadway 30.3" *(769 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph (km/h)** first 1.0 *(1.6)* second 1.6 *(2.6)* third 2.0 *(3.3)* fourth 2.5 *(4.0)* fifth 3.0 *(4.8)* sixth 3.9 *(6.2)* seventh 5.0 *(8.0)* eighth 6.1 *(9.8)* ninth 7.4 *(11.8)* tenth 9.5 *(15.3)* eleventh 12.3 *(19.8)* twelfth 18.1 *(29.1)* reverse 2.7 *(4.3)*, 4.1 *(6.6)*, 5.3 *(8.6)*, 7.8 *(12.6)* **Clutch** dry disc operated by foot pedal **Brakes** dry disc operated by two foot pedals which can be locked together and hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 165.5" *(4.20 m)* left 167.5" *(4.25 m)* (on concrete surface without brake) right 187.5" *(4.76 m)* left 187.5" *(4.76 m)* **Turning space diameter** (on concrete surface with brake applied) right 342" *(8.69 m)* left 346" *(8.79 m)* (on concrete surface without brake) right 386" *(9.80 m)* left 386" *(9.80 m)* **Power take-off** 540 rpm at 1944 engine rpm.

LUGGING ABILITY IN 8th GEAR

Crankshaft Speed rpm	2100	1888	1683	1468	1255	1054
Pull—lbs *(kN)*	3661 *(16.28)*	3888 *(17.29)*	4120 *(18.33)*	4295 *(19.11)*	4378 *(19.47)*	4325 *(19.24)*
Increase in Pull %	0	6	13	17	20	18
Power—Hp *(kW)*	56.28 *(41.97)*	53.30 *(39.75)*	49.90 *(37.21)*	45.06 *(33.60)*	39.19 *(29.22)*	32.53 *(24.26)*
Speed—Mph *(km/h)*	5.77 *(9.28)*	5.14 *(8.27)*	4.54 *(7.31)*	3.93 *(6.33)*	3.36 *(5.40)*	2.82 *(4.54)*
Slip %	8.67	9.49	10.24	10.85	11.09	11.09

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	100.0	100.0
75% of Pull at Maximum Power—Ten Hours		100.0
50% of Pull at Maximum Power—Two Hours		98.5
50% of Pull at Reduced Engine Speed—Two Hours		97.5
Bystander in 12th gear		87.5

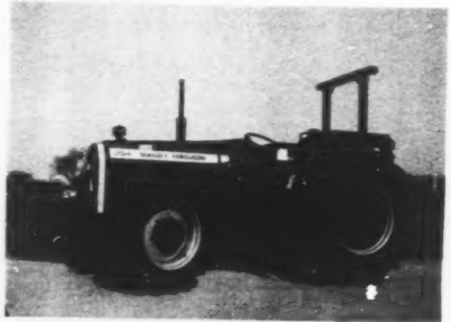
DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th Gear											
56.24 *(41.94)*	3504 *(15.59)*	6.02 *(9.69)*	2101	5.67	3.781 *(14.312)*	0.471 *(0.287)*	14.88 *(2.930)*	191 *(88.3)*	52 *(11.1)*	68 *(19.7)*	28.940 *(97.726)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
44.35 *(33.07)*	7253 *(32.26)*	2.29 *(3.69)*	2184	14.87	4th Gear	174 *(78.6)*	52 *(11.1)*	54 *(12.2)*	28.690 *(96.882)*
56.80 *(42.35)*	3541 *(15.75)*	6.02 *(9.68)*	2100	5.87	8th Gear	191 *(88.3)*	52 *(11.1)*	68 *(20.0)*	28.950 *(97.760)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-30; 6; 22 *(150)*	Two 18.4-30; 6; 22 *(150)*
Ballast	—Liquid (each)	672 lb *(305 kg)*	None
	—Cast Iron (each)	110 lb *(50 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 12.4-24; 6; 20 *(140)*	Two 12.4-24; 6; 20 *(140)*
Ballast	—Liquid (each)	180 lb *(82 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		18.5 in *(470 mm)*	18.5 in *(470 mm)*
Static Weight with Operator	—Rear	5595 lb *(2538 kg)*	4030 lb *(1828 kg)*
	—Front	3050 lb *(1383 kg)*	2690 lb *(1220 kg)*
	—Total	8645 lb *(3921 kg)*	6720 lb *(3048 kg)*



Massey Ferguson 294 Diesel

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 155°F *(68.3°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1480.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1481—MASSEY FERGUSON 2640 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1148 rpm)								
90.95 *(67.82)*	2400	6.222 *(23.553)*	0.480 *(0.292)*	14.62 *(2.879)*	191 *(88.1)*	58 *(14.7)*	75 *(23.7)*	28.900 *(97.591)*
Standard Power Take-off Speed (1000 rpm)—One Hour								
87.60 *(65.32)*	2091	5.540 *(20.971)*	0.443 *(0.270)*	15.81 *(3.115)*	195 *(90.7)*	57 *(13.7)*	75 *(24.1)*	28.895 *(97.574)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
78.95 *(58.87)*	2451	5.496 *(20.805)*	0.488 *(0.297)*	14.37 *(2.830)*	187 *(86.1)*	60 *(15.6)*	76 *(24.4)*	....
0.00 *(0.00)*	2556	2.076 *(7.859)*	....	....	174 *(78.6)*	60 *(15.3)*	76 *(24.2)*	....
40.35 *(30.09)*	2506	3.694 *(13.983)*	0.642 *(0.390)*	10.92 *(2.152)*	182 *(83.6)*	59 *(15.0)*	75 *(23.9)*	....
90.77 *(67.69)*	2402	6.271 *(23.738)*	0.484 *(0.295)*	14.48 *(2.852)*	188 *(86.4)*	60 *(15.6)*	76 *(24.4)*	....
20.39 *(15.20)*	2532	2.868 *(10.857)*	0.986 *(0.600)*	7.11 *(1.400)*	176 *(80.3)*	59 *(15.0)*	75 *(23.9)*	....
59.87 *(44.65)*	2478	4.469 *(16.917)*	0.523 *(0.318)*	13.40 *(2.639)*	182 *(83.6)*	60 *(15.3)*	74 *(23.6)*	....
Av 48.39 *Av (36.08)*	**2487**	**4.145** *(15.691)*	**0.601** *(0.365)*	**11.67** *(2.299)*	**182** *(83.1)*	**59** *(15.3)*	**75** *(24.1)*	**28.870** *(97.490)*

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (5L) Gear											
73.48 *(54.80)*	6611 *(29.41)*	4.17 *(6.71)*	2395	7.79	6.046 *(22.886)*	0.577 *(0.351)*	12.15 *(2.394)*	191 *(88.1)*	54 *(11.9)*	67 *(19.2)*	28.915 *(97.642)*
75% of Pull at Maximum Power—Ten Hours 8th (5L) Gear											
58.18 *(43.38)*	4982 *(22.16)*	4.38 *(7.05)*	2469	5.89	5.076 *(19.213)*	0.611 *(0.372)*	11.46 *(2.258)*	185 *(84.7)*	44 *(6.8)*	49 *(9.2)*	28.972 *(97.834)*
50% of Pull at Maximum Power—Two Hours 8th (5L) Gear											
39.95 *(29.79)*	3306 *(14.71)*	4.53 *(7.29)*	2499	3.77	4.120 *(15.595)*	0.723 *(0.440)*	9.70 *(1.910)*	183 *(83.9)*	50 *(10.0)*	51 *(10.6)*	28.815 *(97.304)*
50% of Pull at Reduced Engine Speed—Two Hours 11th (6L) Gear											
39.97 *(29.81)*	3306 *(14.71)*	4.53 *(7.30)*	1630	3.73	3.121 *(11.814)*	0.547 *(0.333)*	12.81 *(2.523)*	183 *(83.9)*	55 *(12.8)*	59 *(14.7)*	28.790 *(97.220)*
MAXIMUM POWER IN SELECTED GEARS											
68.21 *(50.87)*	10623 *(47.25)*	2.41 *(3.88)*	2425	14.96	5th (3L) Gear			184 *(84.4)*	49 *(9.4)*	58 *(14.4)*	29.020 *(97.996)*
70.38 *(52.48)*	7802 *(34.71)*	3.38 *(5.44)*	2399	9.52	6th (3H) Gear			191 *(88.1)*	55 *(12.8)*	66 *(18.9)*	28.950 *(97.760)*
71.39 *(53.24)*	7563 *(33.64)*	3.54 *(5.70)*	2400	9.04	7th (4L) Gear			189 *(87.2)*	55 *(12.8)*	65 *(18.3)*	28.950 *(97.760)*
74.21 *(55.34)*	6642 *(29.55)*	4.19 *(6.74)*	2400	7.36	8th (5L) Gear			187 *(86.1)*	55 *(12.8)*	63 *(17.2)*	[illegible] *(97.760)*
71.10 *(53.02)*	5478 *(24.37)*	4.87 *(7.83)*	2398	6.21	9th (4H) Gear			190 *(87.5)*	55 *(12.8)*	66 *(18.9)*	28.950 *(97.760)*
72.84 *(54.31)*	4789 *(21.30)*	5.70 *(9.18)*	2399	5.47	10th (5H) Gear			190 *(87.8)*	54 *(12.2)*	67 *(19.4)*	28.960 *(97.794)*
74.83 *(55.80)*	4263 *(18.96)*	6.58 *(10.59)*	2397	4.87	11th (6L) Gear			190 *(87.8)*	54 *(12.2)*	67 *(19.4)*	28.960 *(97.794)*
70.44 *(52.53)*	2961 *(13.17)*	8.92 *(14.36)*	2401	3.50	12th (6H) Gear			190 *(87.5)*	54 *(12.2)*	67 *(19.4)*	28.956 *(97.760)*

Department of Agricultural Engineering

Dates of Test: May 9-18, 1983

Manufacturer: MASSEY FERGUSON S.A., Avenue Blaise Pascal, 60026 Beauvais, France

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8418 **Fuel weight** 7.009 lbs/gal *(0.840 kg/l)* **Oil SAE** 20-20W **API service classification** SE, SF, CC **To motor** 3.960 gal *(14.989 l)* **Drained from motor** 3.294 gal *(12.467 l)* **Transmission and final drive lubricant** Massey Ferguson Permatran oil **Total time engine was operated** 46.5 hours.

ENGINE: **Make** Perkins Diesel **Type** six cylinder vertical **Serial No.** TW31040U685972J **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.875" × 5.0" *(98.4 mm × 127 mm)* **Compression ratio** 16 to 1 **Displacement** 354 cu in *(5798 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: **Type** front wheel assist **Serial No.** *2640RWB198216* **Tread width** rear 60" *(1524 mm)* to 84" *(2134 mm)* front 63" *(1600 mm)* to 81" *(2057 mm)* **Wheel base** 107.3" *(2725 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 39.0" *(991 mm)* Vertical distance above roadway 45.8" *(1164 mm)* Horizontal distance from center of rear wheel tread 0.2" *(5 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.3 *(2.1)* second 1.8 *(2.8)* third 2.0 *(3.3)* fourth 2.7 *(4.4)* fifth 2.8 *(4.6)* sixth 3.8 *(6.1)* seventh 3.9 *(6.4)* eighth 4.6 *(7.4)* ninth 5.3 *(8.5)* tenth 6.1 *(9.8)* eleventh 7.0 *(11.3)* twelfth 9.4 *(15.1)* thirteenth 9.8 *(15.8)* fourteenth 13.1 *(21.1)* fifteenth 13.6 *(22.0)* sixteenth 18.2 *(29.4)* reverse 1.3 *(2.1)*, 1.8 *(2.8)*, 2.0 *(3.3)*, 2.7 *(4.4)*, 2.8 *(4.6)*, 3.8 *(6.1)*, 3.9 *(6.4)*, 4.6 *(7.4)*, 5.3 *(8.5)*, 6.1 *(9.8)*, 7.0 *(11.3)*, 9.4 *(15.1)* **Clutch** single dry disc operated by foot pedal **Brakes** single wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 194.5" *(4.94 m)* left 187" *(4.75 m)* (on concrete surface without brake) right 228" *(5.79 m)* left 222" *(5.64 m)* **Turning space diameter** (on concrete surface with brake applied) right 405" *(10.28 m)* left 391" *(9.93 m)* (on concrete surface without brake) right 471" *(11.96 m)* left 459" *(11.66 m)* **Power take-off** 540 rpm at 1992 engine rpm and 1000 rpm at 2091 engine rpm.

LUGGING ABILITY IN 8th (5L) GEAR

Crankshaft Speed rpm	2400	2161	1914	1686	1436	1195	953
Pull—lbs *(kN)*	6642 *(29.55)*	7193 *(32.00)*	7722 *(34.35)*	7965 *(35.43)*	7893 *(35.11)*	8009 *(35.63)*	7521 *(33.46)*
Increase in Pull %	0	8	16	20	19	21	13
Power—Hp *(kW)*	74.21 *(55.34)*	71.64 *(53.42)*	67.59 *(50.40)*	61.13 *(45.58)*	51.62 *(38.49)*	43.49 *(32.43)*	32.79 *(24.45)*
Speed—Mph *(km/h)*	4.19 *(6.74)*	3.73 *(6.01)*	3.28 *(5.28)*	2.88 *(4.63)*	2.45 *(3.95)*	2.04 *(3.28)*	1.63 *(2.63)*
Slip %	7.36	8.35	9.18	9.46	9.46	9.46	8.91

TRACTOR SOUND LEVEL WITH CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	79.5	79.0
75% of Pull at Maximum Power—Ten Hours		80.0
50% of Pull at Maximum Power—Two Hours		79.5
50% of Pull at Reduced Engine Speed—Two Hours		76.5
Bystander in 15th (8L) gear		90.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (5L) Gear											
74.77 *(55.76)*	6498 *(28.90)*	4.32 *(6.94)*	2399	5.34	6.010 *(22.751)*	0.563 *(0.343)*	12.44 *(2.451)*	190 *(87.8)*	54 *(12.2)*	66 *(18.6)*	28.865 *(97.473)*
MAXIMUM POWER IN SELECTED GEARS											
63.80 *(47.58)*	13707 *(60.97)*	1.75 *(2.81)*	2439	14.86	3rd (2L) Gear			183 *(83.9)*	47 *(8.3)*	54 *(12.2)*	29.010 *(97.962)*
75.56 *(56.35)*	6568 *(29.22)*	4.31 *(6.94)*	2399	5.34	8th (5L) Gear			187 *(86.1)*	54 *(12.2)*	60 *(15.6)*	28.940 *(97.726)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-38; 8; 20 *(140)*	Two 18.4-38; 8; 20 *(140)*
Ballast	—Liquid (each)	1338 lb *(607 kg)*	None
	—Cast Iron (each)	112 lb *(51 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 13.6-28; 8; 22 *(150)*	Two 13.6-28; 8; 22 *(150)*
Ballast	—Liquid (each)	522 lb *(237 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		23 in *(585 mm)*	23 in *(585 mm)*
Static Weight with Operator	—Rear	10815 lb *(4906 kg)*	7915 lb *(3590 kg)*
	—Front	5565 lb *(2524 kg)*	4520 lb *(2050 kg)*
	—Total	16380 lb *(7430 kg)*	12435 lb *(5640 kg)*

Massey Ferguson 2640 Diesel

REPAIRS and ADJUSTMENTS: No repairs and adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 149°F *(65.1°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1481.

LOUIS I. LEVITICUS
Engineer-in-Charge

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Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
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NEBRASKA TRACTOR TEST 1482
VERSATILE 835 SERIES 3 DIESEL
12 SPEED
(SERIAL NUMBERS 835 83 036769 and HIGHER)

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1009 rpm)								
200.50 (149.36)	2100	12.665 (47.942)	0.443 (0.270)	15.82 (3.115)	183 (83.8)	62 (16.7)	75 (23.9)	28.783 (97.197)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
177.47 (132.34)	2190	12.085 (45.747)	0.477 (0.290)	14.69 (2.893)	181 (82.8)	62 (16.9)	78 (25.8)	....
0.00 (0.00)	2306	4.225 (15.993)	....	....	176 (79.7)	62 (16.9)	74 (23.6)	....
91.54 (68.26)	2256	8.724 (33.024)	0.668 (0.406)	10.49 (2.067)	178 (81.1)	61 (16.1)	72 (22.5)	....
200.42 (149.45)	2099	12.783 (48.389)	0.447 (0.272)	15.68 (3.089)	182 (83.6)	61 (16.1)	74 (23.1)	....
46.05 (34.34)	2278	6.507 (24.632)	0.990 (0.602)	7.08 (1.394)	176 (80.3)	59 (15.0)	72 (22.5)	....
135.74 (101.22)	2232	10.569 (40.008)	0.546 (0.332)	12.84 (2.530)	180 (81.9)	62 (16.9)	78 (25.8)	....
Av 108.54 **Av (80.94)**	**2226**	**9.149** (34.633)	**0.591** (0.359)	**11.86** (2.337)	**179** (81.6)	**61** (16.3)	**75** (23.9)	**28.773** (97.163)

DRAWBAR PERFORMANCE AT 2100 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
178.82 (133.35)	10829 (48.17)	6.19 (9.97)	2100	2.97	12.379 (46.859)	0.485 (0.295)	14.45 (2.846)	185 (84.7)	64 (17.5)	74 (23.3)	28.670 (96.814)
75% of Pull at Maximum Power—Ten Hours 7th (2-3) Gear											
144.06 (107.42)	8195 (36.45)	6.59 (10.61)	2217	2.13	11.309 (42.807)	0.550 (0.335)	12.74 (2.509)	184 (84.4)	62 (16.9)	77 (24.8)	28.815 (97.304)
50% of Pull at Maximum Power—Two Hours 7th (2-3) Gear											
98.40 (73.38)	5464 (24.31)	6.75 (10.87)	2261	1.78	9.418 (35.650)	0.671 (0.408)	10.45 (2.058)	183 (83.9)	56 (13.3)	66 (18.9)	28.970 (97.827)
50% of Pull at Reduced Engine Speed—Two Hours 11th (3-3) Gear											
98.84 (73.40)	5464 (24.31)	6.76 (10.87)	1162	1.62	6.154 (23.294)	0.438 (0.266)	16.00 (3.151)	184 (84.4)	60 (15.6)	72 (22.2)	28.925 (97.675)
MAXIMUM POWER IN SELECTED GEARS											
155.98 (116.32)	25687 (114.26)	2.28 (3.66)	2137	14.96	1st (1-1) Gear			182 (83.1)	50 (10.0)	55 (12.8)	28.960 (97.794)
167.03 (124.55)	22809 (101.46)	2.75 (4.42)	2099	10.14	2nd (1-2) Gear			183 (83.9)	52 (11.1)	59 (15.0)	28.970 (97.827)
172.76 (128.83)	19980 (88.88)	3.24 (5.22)	2098	7.56	3rd (1-3) Gear			186 (85.6)	63 (17.2)	81 (27.2)	28.760 (97.118)
177.14 (132.09)	17235 (76.66)	3.85 (6.20)	2099	5.63	4th (1-4) Gear			187 (85.8)	63 (17.2)	80 (26.7)	28.760 (97.118)
180.74 (134.78)	14859 (66.09)	4.56 (7.34)	2098	4.28	5th (2-1) Gear			185 (85.0)	62 (16.7)	78 (25.6)	28.770 (97.152)
181.14 (135.08)	12710 (56.53)	5.34 (8.60)	2098	3.51	6th (2-2) Gear			186 (85.6)	62 (16.7)	77 (25.0)	28.770 (97.152)
180.50 (134.60)	10927 (48.60)	6.19 (9.97)	2099	2.89	7th (2-3) Gear			185 (85.0)	64 (17.8)	74 (23.3)	28.650 (96.747)
177.53 (132.38)	9205 (40.94)	7.23 (11.64)	2098	2.42	8th (2-4) Gear			185 (85.0)	64 (17.8)	74 (23.3)	28.640 (96.713)
174.50 (130.12)	7171 (31.90)	9.13 (14.69)	2100	1.62	9th (3-1) Gear			184 (84.4)	65 (18.3)	73 (22.8)	28.630 (96.679)

LUGGING ABILITY IN 7th (2-3) GEAR

Crankshaft Speed rpm	2099	1888	1679	1472	1256	1042
Pull—lbs (kN)	10927 (48.60)	12863 (57.22)	14666 (65.25)	16259 (72.32)	16190 (72.02)	15271 (67.93)
Increase in Pull %	0	18	34	49	48	40
Power—Hp (kW)	180.50 (134.60)	189.89 (141.60)	191.21 (142.59)	184.65 (137.68)	156.77 (116.90)	123.06 (91.77)
Speed—Mph (km/h)	6.19 (9.97)	5.54 (8.91)	4.89 (7.87)	4.26 (6.85)	3.63 (5.84)	3.02 (4.86)
Slip %	2.89	3.51	4.13	4.73	4.88	4.58

Department of Agricultural Engineering

Dates of Test: May 31 to June 9, 1983

Manufacturer: VERSATILE FARM EQUIPMENT COMPANY, 1260 Clarence Avenue, Winnipeg, Manitoba, Canada R3T 1T3

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8417 **Fuel weight** 7.008 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 7.297 gal *(27.623 l)* **Drained from motor** 6.794 gal *(25.716 l)* **Transmission and hydraulic lubricant** Versatile HyGear 23 or equivalent **Final drive lubricant** SAE 85W140 **Total time engine was operated** 47.0 hours.

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger **Serial No.** 11080966 **Crankshaft** lengthwise **Rated rpm** 1750 to 2100 **Bore and stroke** 5.5" × 6.0" *(139.7 mm × 152.4 mm)* **Compression ratio** 14.1 to 1 **Displacement** 855 cu in *(14013 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** 835 83 036769 **Tread width** rear 72" *(1829 mm)* to 118" *(3000 mm)* front 72" *(1829 mm)* to 118" *(3000 mm)* **Wheel base** 130" *(3302 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 78" *(1980 mm)* Vertical distance above roadway 42" *(1067 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph** *(km/h)* first 2.6 *(4.2)* second 3.0 *(4.8)* third 3.5 *(5.7)* fourth 4.1 *(6.6)* fifth 4.7 *(7.6)* sixth 5.5 *(8.9)* seventh 6.3 *(10.1)* eighth 7.3 *(11.7)* ninth 9.2 *(14.8)* tenth 10.7 *(17.2)* eleventh 12.3 *(19.8)* twelfth 14.3 *(23.0)* reverse 3.4 *(5.5)*, 3.9 *(6.2)*, 4.5 *(7.2)*, 5.2 *(8.4)* **Clutch** dual dry disc operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal and mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 236" *(5.99 m)* left 236" *(5.99 m)* **Turning space diameter** (on concrete surface without brake) right 490" *(12.45 m)* left 490" *(12.45 m)* **Power take-off** 1009 rpm at 2100 engine rpm.

TRACTOR SOUND LEVEL WITH CAB	1750 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	80.0	82.0	82.5
75% of Pull at Maximum Power—Ten Hours			82.5
50% of Pull at Maximum Power—Two Hours			83.0
50% of Pull at Reduced Engine Speed—Two Hours			81.0
Bystander in 12th (3-4) gear			88.5

SUPPLEMENTARY TESTS
DRAWBAR PERFORMANCE AT 1900 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
187.46 (139.79)	12618 (56.13)	5.57 (8.97)	1900	3.47	12.075 (45.711)	0.451 (0.275)	15.52 (3.058)	184 (84.2)	60 (15.3)	68 (20.0)	28.730 (97.017)
MAXIMUM POWER IN SELECTED GEARS											
165.79 (123.63)	25139 (111.82)	2.47 (3.98)	1994	14.72	2nd (1-2) Gear			183 (83.6)	51 (10.6)	57 (13.9)	28.960 (97.794)
175.17 (130.63)	23112 (102.81)	2.84 (4.57)	1898	10.54	3rd (1-3) Gear			183 (83.9)	54 (12.2)	64 (17.8)	28.980 (97.861)
179.89 (134.14)	19704 (87.65)	3.42 (5.51)	1901	7.57	4th (1-4) Gear			187 (86.1)	63 (17.2)	80 (26.7)	28.760 (97.118)
185.99 (138.69)	17106 (76.09)	4.08 (6.56)	1898	5.56	5th (2-1) Gear			186 (85.6)	63 (17.2)	79 (26.1)	28.770 (97.152)
189.32 (141.17)	14794 (65.80)	4.80 (7.72)	1899	4.36	6th (2-2) Gear			187 (86.1)	62 (16.7)	77 (25.0)	28.770 (97.152)
189.04 (140.97)	12733 (56.64)	5.57 (8.96)	1898	3.51	7th (2-3) Gear			185 (85.0)	64 (17.8)	74 (23.3)	28.650 (96.747)
187.32 (139.69)	10790 (47.99)	6.51 (10.43)	1899	2.81	8th (2-4) Gear			185 (85.0)	64 (17.8)	74 (23.3)	28.640 (96.713)
186.05 (138.74)	8491 (37.77)	8.22 (13.22)	1899	1.94	9th (3-1) Gear			185 (84.7)	65 (18.3)	73 (22.8)	28.630 (96.679)

DRAWBAR PERFORMANCE AT 1750 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
188.51 (140.57)	13844 (61.58)	5.11 (8.22)	1750	3.94	11.701 (44.293)	0.435 (0.265)	16.11 (3.174)	185 (85.0)	63 (16.9)	76 (24.4)	28.760 (97.118)
MAXIMUM POWER IN SELECTED GEARS											
169.95 (126.73)	25120 (111.74)	2.54 (4.08)	1779	14.84	3rd (1-3) Gear			184 (84.2)	53 (11.7)	61 (16.1)	28.970 (97.827)
176.81 (131.85)	21513 (95.69)	3.03 (4.88)	1750	9.53	4th (1-4) Gear			188 (86.7)	63 (17.2)	81 (27.2)	28.760 (97.118)
186.10 (138.78)	18747 (83.39)	3.72 (5.99)	1750	6.51	5th (2-1) Gear			188 (86.4)	63 (17.2)	79 (26.1)	28.760 (97.118)
189.82 (141.55)	16188 (72.01)	4.40 (7.08)	1752	5.03	6th (2-2) Gear			187 (86.1)	62 (16.7)	78 (25.6)	28.770 (97.152)
190.67 (142.18)	14006 (62.30)	5.11 (8.22)	1749	4.05	7th (2-3) Gear			186 (85.3)	64 (17.8)	74 (23.3)	28.650 (96.747)
190.49 (142.05)	11945 (53.13)	5.98 (9.62)	1750	3.20	8th (2-4) Gear			186 (85.6)	65 (18.3)	73 (22.8)	28.640 (96.713)
188.93 (140.89)	9386 (41.75)	7.55 (12.15)	1748	2.26	9th (3-1) Gear			185 (85.0)	65 (18.3)	73 (22.8)	28.630 (96.679)
186.77 (139.28)	7956 (35.39)	8.80 (14.17)	1748	1.78	10th (3-2) Gear			185 (85.0)	65 (18.3)	73 (22.8)	28.630 (96.679)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Four 18.4-38, 8, inner 14 (95) outer 12 (83)	Four 18.4-38, 8, inner 14 (95) outer 12 (83)
Ballast	—Liquid (each inner)	985 lb (447 kg)	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi (kPa)	Four 18.4-38, 8, inner 14 (95) outer 12 (83)	Four 18.4-38, 8, inner 14 (95) outer 12 (83)
Ballast	—Liquid (each inner)	815 lb (369 kg)	None
	—Cast Iron (each)	None	None
Height of Drawbar		17 in (430 mm)	17 in (430 mm)
Static Weight with Operator	—Rear	11830 lb (5366 kg)	9860 lb (4472 kg)
	—Front	16150 lb (7326 kg)	14525 lb (6589 kg)
	—Total	27980 lb (12692 kg)	24385 lb (11061 kg)

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 141°F *(60.8°C)*. Nine gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. The performance figures on this report apply to tractor chassis Serial No. 835 83 036769 and higher.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1482.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

Versatile 835 Series 3 Diesel

NEBRASKA TRACTOR TEST 1483
VERSATILE 875 SERIES 3 DIESEL
12 SPEED
(SERIAL NUMBERS 875 83 057906 and HIGHER)

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1006 rpm)								
252.67 (188.42)	2100	15.022 (56.864)	0.417 (0.254)	16.82 (3.314)	185 (84.8)	62 (16.9)	76 (24.3)	28.680 (96.808)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
223.32 (166.53)	2183	14.078 (53.291)	0.442 (0.269)	15.86 (3.125)	182 (83.1)	63 (17.2)	76 (24.2)	....
0.00 (0.00)	2297	4.091 (15.486)	....	....	176 (79.7)	63 (17.2)	76 (24.4)	....
114.35 (85.42)	2242	9.850 (37.286)	0.603 (0.367)	11.63 (2.291)	178 (81.1)	64 (17.8)	77 (25.0)	....
249.36 (185.95)	2100	15.178 (57.455)	0.427 (0.260)	16.43 (3.236)	183 (83.9)	62 (16.9)	74 (23.3)	....
57.96 (43.22)	2264	6.898 (26.112)	0.834 (0.508)	8.40 (1.655)	176 (80.0)	62 (16.4)	74 (23.3)	....
170.07 (126.82)	2217	12.323 (46.648)	0.508 (0.309)	13.80 (2.719)	181 (82.8)	63 (17.2)	76 (24.2)	....
Av 135.88 Av (101.33)	2217	10.403 (39.380)	0.557 (0.327)	13.06 (2.573)	179 (81.8)	63 (17.1)	75 (24.1)	28.657 (96.770)

DRAWBAR PERFORMANCE AT 2100 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
224.08 (167.10)	12851 (57.16)	6.54 (10.52)	2099	3.18	14.591 (55.612)	0.460 (0.280)	15.25 (3.005)	186 (85.3)	58 (14.4)	70 (21.1)	28.910 (97.625)
75% of Pull at Maximum Power—Ten Hours 7th (2-3) Gear											
179.79 (134.07)	9737 (43.31)	6.92 (11.14)	2205	2.28	13.090 (49.552)	0.510 (0.310)	13.73 (2.706)	186 (85.7)	68 (19.9)	82 (27.8)	28.841 (97.392)
50% of Pull at Maximum Power—Two Hours 7th (2-3) Gear											
122.62 (91.44)	6492 (28.88)	7.08 (11.40)	2256	1.54	10.377 (39.280)	0.593 (0.361)	11.82 (2.328)	184 (84.4)	64 (17.8)	81 (27.2)	28.845 (97.405)
50% of Pull at Reduced Engine Speed—Two Hours 11th (3-3) Gear											
122.69 (91.49)	6492 (28.88)	7.09 (11.41)	1149	1.46	7.399 (28.009)	0.423 (0.257)	16.58 (3.267)	186 (85.3)	66 (18.6)	84 (28.9)	28.815 (97.304)
MAXIMUM POWER IN SELECTED GEARS											
198.49 (148.02)	26725 (118.88)	2.79 (4.48)	2119	14.68		2nd (1-2) Gear		185 (85.0)	64 (17.8)	69 (20.6)	28.880 (97.523)
216.49 (161.43)	23854 (106.11)	3.40 (5.48)	2099	8.51		3rd (1-3) Gear		184 (84.4)	61 (16.1)	70 (21.1)	28.860 (97.456)
220.29 (164.27)	20273 (90.18)	4.07 (6.56)	2099	5.70		4th (1-4) Gear		184 (84.4)	57 (13.9)	64 (17.8)	28.860 (97.456)
225.73 (168.33)	17584 (78.22)	4.81 (7.75)	2099	4.76		5th (2-1) Gear		187 (86.1)	63 (17.2)	82 (27.8)	28.820 (97.321)
227.48 (169.63)	15107 (67.20)	5.65 (9.09)	2099	3.71		6th (2-2) Gear		188 (86.7)	63 (17.2)	81 (27.2)	28.830 (97.355)
226.35 (168.79)	12983 (57.75)	6.54 (10.52)	2098	3.13		7th (2-3) Gear		187 (86.1)	61 (16.1)	78 (25.6)	28.860 (97.456)
224.81 (167.64)	11042 (49.12)	7.63 (12.29)	2099	2.64		8th (2-4) Gear		187 (86.1)	62 (16.7)	80 (26.7)	28.850 (97.422)
221.70 (165.32)	8630 (38.39)	9.63 (15.50)	2099	1.97		9th (3-1) Gear		187 (86.1)	63 (17.2)	81 (27.2)	28.840 (97.388)

LUGGING ABILITY IN 7th (2-3) GEAR

Crankshaft Speed rpm	2098	1887	1683	1471	1256	1048
Pull—lbs (kN)	12983 (57.75)	15067 (67.02)	16659 (74.10)	17675 (78.62)	17212 (76.56)	16142 (71.80)
Increase in Pull %	0	16	28	36	33	24
Power—Hp (kW)	226.35 (168.79)	234.79 (175.08)	230.06 (171.55)	212.49 (158.45)	176.96 (131.96)	138.96 (103.62)
Speed—Mph (km/h)	6.54 (10.52)	5.84 (9.40)	5.18 (8.33)	4.51 (7.26)	3.86 (6.20)	3.23 (5.20)
Slip %	3.13	3.71	4.36	4.83	4.68	4.36

Department of Agricultural Engineering

Dates of Test: May 31 to June 10, 1983

Manufacturer: VERSATILE FARM EQUIPMENT COMPANY, 1260 Clarence Avenue, Winnipeg, Manitoba, Canada R3T 1T3

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8420 **Fuel weight** 7.011 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 7.334 gal *(27.762 l)* **Drained from motor** 6.906 gal *(26.141 l)* **Transmission and hydraulic lubricant** Versatile Hygear 23 or equivalent **Final drive lubricant** SAE 85W140 **Total time engine was operated** 41.0 hours.

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger **Serial No.** 11084147 **Crankshaft** lengthwise **Rated rpm** 1750 to 2100 **Bore and stroke** 5.5" × 6.0" *(139.7 mm × 152.4 mm)* **Compression ratio** 14.1 to 1 **Displacement** 855 cu in *(14013 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** 875 83 058000 **Tread width** rear 72" *(1829 mm)* to 122" *(3099 mm)* front 72" *(1829 mm)* to 122" *(3099 mm)* **Wheel base** 130" *(3302 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 77" *(1960 mm)* Vertical distance above roadway 42" *(1067 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph** *(km/h)* first 2.7 *(4.3)* second 3.1 *(5.0)* third 3.6 *(5.8)* fourth 4.1 *(6.6)* fifth 4.8 *(7.7)* sixth 5.6 *(9.0)* seventh 6.5 *(10.5)* eighth 7.5 *(12.1)* ninth 9.4 *(15.1)* tenth 10.9 *(17.5)* eleventh 12.6 *(20.3)* twelfth 14.6 *(23.5)* reverse 3.5 *(5.6)*, 4.0 *(6.4)*, 4.6 *(7.4)*, 5.4 *(8.7)* **Clutch** dual dry disc operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal and mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 239" *(6.07 m)* left 239" *(6.07 m)* **Turning space diameter** (on concrete surface without brake) right 490" *(12.45 m)* left 490" *(12.45 m)* **Power take-off** 1008 rpm at 2100 engine rpm.

TRACTOR SOUND LEVEL WITH CAB	1750 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	83.0	80.5	82.5
75% of Pull at Maximum Power—Ten Hours			82.5
50% of Pull at Maximum Power—Two Hours			81.5
50% of Pull at Reduced Engine Speed—Two Hours			79.0
Bystander in 12th (3-4) gear			89.0

SUPPLEMENTARY TESTS
DRAWBAR PERFORMANCE AT 1900 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
231.99 (172.99)	14785 (65.76)	5.88 (9.47)	1900	3.79	14.352 (54.330)	0.434 (0.264)	16.16 (3.184)	187 (86.1)	61 (16.1)	77 (24.7)	28.880 (97.523)
MAXIMUM POWER IN SELECTED GEARS											
206.98 (154.34)	26606 (118.35)	2.92 (4.69)	1937	15.00		3rd (1-3) Gear		186 (85.6)	65 (18.3)	70 (21.1)	28.890 (97.557)
225.76 (168.35)	23482 (104.45)	3.61 (5.80)	1899	7.77		4th (1-4) Gear		185 (84.7)	58 (14.4)	66 (18.9)	28.860 (97.456)
228.32 (170.26)	19923 (88.62)	4.30 (6.92)	1899	5.94		5th (2-1) Gear		188 (86.7)	63 (17.2)	82 (27.8)	28.810 (97.287)
233.85 (174.38)	17304 (76.97)	5.07 (8.16)	1899	4.60		6th (2-2) Gear		188 (86.7)	63 (17.2)	81 (27.2)	28.830 (97.355)
234.67 (174.99)	14959 (66.54)	5.88 (9.47)	1899	3.63		7th (2-3) Gear		189 (87.2)	62 (16.7)	79 (26.1)	28.850 (97.422)
233.65 (174.23)	12743 (56.68)	6.88 (11.07)	1899	2.97		8th (2-4) Gear		188 (86.7)	62 (16.7)	80 (26.7)	28.840 (97.388)
231.21 (172.42)	9986 (44.42)	8.68 (13.97)	1898	2.30		9th (3-1) Gear		189 (86.9)	63 (17.2)	81 (27.2)	28.840 (97.388)

DRAWBAR PERFORMANCE AT 1750 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
229.39 (171.06)	15957 (70.98)	5.39 (8.68)	1751	4.27	13.800 (52.238)	0.422 (0.257)	16.62 (3.275)	188 (86.7)	63 (16.9)	76 (24.4)	28.860 (97.456)
MAXIMUM POWER IN SELECTED GEARS											
206.18 (153.75)	26293 (116.95)	2.94 (4.73)	1948	14.81		3rd (1-3) Gear		187 (85.8)	66 (18.9)	72 (22.2)	28.900 (97.591)
217.62 (162.28)	25182 (112.02)	3.24 (5.22)	1750	10.10		4th (1-4) Gear		186 (85.6)	60 (15.6)	68 (20.0)	28.860 (97.456)
224.32 (167.27)	21478 (95.54)	3.92 (6.30)	1749	6.94		5th (2-1) Gear		188 (86.7)	63 (17.2)	82 (27.8)	28.810 (97.287)
229.17 (170.89)	18506 (82.32)	4.64 (7.47)	1751	5.15		6th (2-2) Gear		189 (87.2)	63 (17.2)	81 (27.2)	28.820 (97.321)
231.95 (172.97)	16140 (71.79)	5.39 (8.67)	1748	4.19		7th (2-3) Gear		189 (87.2)	62 (16.7)	79 (26.1)	28.850 (97.422)
232.12 (173.09)	13759 (61.20)	6.33 (10.18)	1753	3.38		8th (2-4) Gear		189 (87.2)	62 (16.7)	80 (26.7)	28.840 (97.388)
230.25 (171.70)	10823 (48.14)	7.98 (12.84)	1748	2.39		9th (3-1) Gear		190 (87.8)	63 (17.2)	81 (27.2)	28.830 (97.355)
228.65 (170.50)	9211 (40.97)	9.31 (14.98)	1748	1.97		10th (3-2) Gear		188 (86.4)	63 (17.2)	81 (27.2)	28.830 (97.355)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 20.8-38; 8; inner 14 *(95)*; outer 12 *(83)*	Four 20.8-38; 8; inner 14 *(95)*; outer 12 *(83)*
Ballast	—Liquid (each inner)	1170 lb *(531 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 20.8-38; 8; inner 14 *(95)*; outer 12 *(83)*	Four 20.8-38; 8; inner 14 *(95)*; outer 12 *(83)*
Ballast	—Liquid (each inner)	765 lb *(347 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		19.5 in *(495 mm)*	19.5 in *(495 mm)*
Static Weight with Operator	—Rear	12815 lb *(5813 kg)*	10475 lb *(4752 kg)*
	—Front	16685 lb *(7568 kg)*	15155 lb *(6874 kg)*
	—Total	29500 lb *(13381 kg)*	25630 lb *(11626 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 137°F *(58.3°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. The performance figures on this report apply to tractor chassis Serial No. 875 83 057906 and higher.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1483**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
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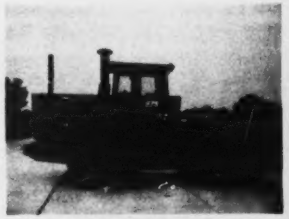

Versatile 875 Series 3 Diesel

NEBRASKA TRACTOR TEST 1484—HESSTON 466 DT FIAT DIESEL
ALSO HESSTON 466, 466 DT/L AND 466/L FIAT MODELS
12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—638 rpm)								
45.13 (33.65)	2600	2.948 (11.159)	0.458 (0.278)	15.31 (3.016)	187 (86.1)	60 (15.7)	75 (24.0)	28.870 (97.490)
Standard Power Take-off Speed (540 rpm)—One Hour								
42.68 (31.83)	2199	2.550 (9.653)	0.419 (0.255)	16.74 (3.297)	184 (84.6)	61 (16.1)	75 (24.1)	28.880 (97.523)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
39.67 (29.58)	2688	2.607 (9.869)	0.461 (0.280)	15.22 (2.997)	182 (83.1)	64 (17.5)	75 (23.9)	....
0.00 (0.00)	2963	1.045 (3.956)	....	....	166 (74.7)	64 (18.1)	76 (24.2)	....
20.84 (15.54)	2825	1.734 (6.564)	0.583 (0.355)	12.02 (2.367)	171 (77.2)	63 (17.2)	75 (23.9)	....
45.37 (33.83)	2600	2.950 (11.167)	0.456 (0.277)	15.38 (3.029)	188 (86.9)	62 (16.7)	75 (23.9)	....
10.75 (8.02)	2910	1.370 (5.186)	0.893 (0.543)	7.85 (1.546)	167 (75.0)	65 (18.3)	75 (23.9)	....
30.42 (22.68)	2747	2.141 (8.105)	0.493 (0.300)	14.21 (2.798)	176 (79.7)	64 (17.8)	75 (23.9)	....
Av 24.51 **Av (18.28)**	**2789**	**1.974** **(7.472)**	**0.565** **(0.343)**	**12.41** **(2.446)**	**175** **(79.4)**	**64** **(17.6)**	**75** **(23.9)**	**28.867** **(97.546)**

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (III-1) Gear											
39.48 (29.44)	2561 (11.39)	5.78 (9.30)	2601	5.10	2.890 (10.940)	0.513 (0.312)	13.66 (2.691)	189 (87.2)	65 (18.1)	73 (22.5)	28.960 (97.794)
75% of Pull at Maximum Power—Ten Hours 8th (III-1) Gear											
31.36 (23.39)	1946 (8.66)	6.04 (9.73)	2601	4.08	2.437 (9.224)	0.544 (0.331)	12.87 (2.535)	184 (84.5)	66 (19.0)	73 (22.7)	28.899 (97.588)
50% of Pull at Maximum Power—Two Hours 8th (III-1) Gear											
21.87 (16.31)	1297 (5.77)	6.32 (10.18)	2781	2.83	1.998 (7.563)	0.640 (0.389)	10.95 (2.157)	177 (80.6)	66 (18.9)	71 (21.4)	28.950 (97.760)
50% of Pull at Reduced Engine Speed—Two Hours 10th (III-2) Gear											
21.88 (16.32)	1297 (5.77)	6.33 (10.18)	1804	2.79	1.552 (5.875)	0.497 (0.302)	14.10 (2.777)	176 (79.7)	65 (18.3)	72 (21.9)	28.935 (97.709)
MAXIMUM POWER IN SELECTED GEARS											
30.68 (22.88)	4969 (22.10)	2.32 (3.73)	2716	14.96	4th (II-1) Gear			182 (83.1)	71 (21.7)	75 (23.9)	28.730 (97.017)
36.67 (27.35)	4751 (21.13)	2.89 (4.66)	2599	12.46	5th (I-4) Gear			186 (85.6)	72 (22.2)	77 (25.0)	28.730 (97.017)
38.94 (29.04)	3970 (17.66)	3.68 (5.92)	2599	8.27	6th (II-2) Gear			188 (86.4)	64 (17.8)	68 (20.0)	28.950 (97.760)
39.07 (29.14)	3180 (14.14)	4.61 (7.42)	2600	6.32	7th (II-3) Gear			189 (86.9)	63 (17.2)	68 (20.0)	28.950 (97.760)
40.03 (29.85)	2594 (11.54)	5.79 (9.31)	2600	4.92	8th (III-1) Gear			187 (86.1)	62 (16.7)	67 (19.4)	28.970 (97.827)
38.74 (28.89)	1995 (8.87)	7.29 (11.73)	2599	3.91	9th (II-4) Gear			188 (86.7)	62 (16.7)	67 (19.4)	28.960 (97.794)
38.64 (28.82)	1594 (7.09)	9.09 (14.63)	2602	3.15	10th (III-2) Gear			187 (86.1)	63 (17.2)	68 (20.0)	28.960 (97.794)

Department of Agricultural Engineering

Dates of Test: June 9-22, 1983

Manufacturer: FIAT TRATTORI S.p.A., Via Pico della Mirandola, 72-41100 Modena, Italy

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8416 **Fuel weight** 7.007 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 1.723 gal *(6.524 l)* **Drained from motor** 1.458 gal *(5.518 l)* **Transmission and final drive lubricant** API 303 hydraulic fluid **Total time engine was operated** 38.5 hours.

ENGINE: **Make** Fiat Diesel **Type** three cylinder vertical **Serial No.** 8035.02*376-100744* **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 3.94" × 4.33" *(100 mm × 110 mm)* **Compression ratio** 17 to 1 **Displacement** 158 cu in *(2592 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** front wheel assist **Serial No.** *466DT/12*370008* **Tread width** rear 56.1" *(1425 mm)* to 75.8" *(1925 mm)* front 56.9" *(1445 mm)* to 73.8" *(1875 mm)* **Wheel base** 83.4" *(2119 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 32.0" *(813 mm)* Vertical distance above roadway 32.5" *(825 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.1 *(1.7)* second 1.7 *(2.7)* third 2.1 *(3.3)* fourth 2.5 *(4.1)* fifth 3.2 *(5.1)* sixth 3.9 *(6.3)* seventh 4.8 *(7.7)* eighth 5.9 *(9.5)* ninth 7.4 *(11.8)* tenth 9.1 *(14.6)* eleventh 11.1 *(17.9)* twelfth 17.2 *(27.6)* reverse 2.8 *(4.5)*, 4.3 *(6.9)*, 5.3 *(8.5)*, 8.2 *(13.2)* **Clutch** dry disc operated by foot pedal **Brakes** wet disc operated by two foot pedals which can be locked together and hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 128.5" *(3.26 m)* left 128.5" *(3.26 m)* (on concrete surface without brake) right 203" *(5.16 m)* left 203" *(5.16 m)* **Turning space diameter** (on concrete surface with brake applied) right 267" *(6.78 m)* left 267" *(6.78 m)* (on concrete surface without brake) right 416" *(10.57 m)* left 416" *(10.57 m)* **Power take-off** 540 rpm at 2199 engine rpm.

LUGGING ABILITY IN 8th (III-1) GEAR

Crankshaft Speed rpm	2600	2349	2077	1819	1565	1301	1034
Pull—lbs (kN)	2594 (11.54)	2804 (12.47)	3000 (13.34)	3124 (13.90)	3312 (14.73)	3421 (15.22)	3151 (14.02)
Increase in Pull %	0	8	16	20	28	32	21
Power—Hp (kW)	40.03 (29.85)	38.87 (28.99)	36.65 (27.33)	33.34 (24.86)	30.25 (22.56)	25.90 (19.31)	19.05 (14.21)
Speed—Mph (km/h)	5.79 (9.31)	5.20 (8.37)	4.58 (7.37)	4.00 (6.44)	3.43 (5.51)	2.84 (4.57)	2.27 (3.65)
Slip %	4.92	5.47	5.84	6.08	6.56	6.80	6.32

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB (A)
Maximum Available Power—Two Hours	96.5	96.0
75% of Pull at Maximum Power—Ten Hours		95.5
50% of Pull at Maximum Power—Two Hours		94.5
50% of Pull at Reduced Engine Speed—Two Hours		90.5
Bystander in 12th (III-4) gear		86.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (III-1) Gear											
38.44 (28.67)	2454 (10.92)	5.87 (9.45)	2600	4.47	2.890 (10.940)	0.527 (0.320)	13.30 (2.620)	191 (88.1)	74 (23.1)	81 (27.2)	28.745 (97.068)
MAXIMUM POWER IN SELECTED GEARS											
35.47 (26.45)	5833 (25.95)	2.28 (3.67)	2647	14.89	4th (II-1) Gear			187 (85.8)	70 (21.1)	74 (23.3)	28.730 (97.017)
39.69 (29.60)	2531 (11.26)	5.88 (9.46)	2598	4.34	8th (III-1) Gear			189 (87.2)	52 (16.7)	67 (19.4)	28.970 (97.827)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9-28; 6; 16 *(110)*	Two 16.9-28; 6; 16 *(110)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	445 lb *(202 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5-24; 6; 20 *(140)*	Two 9.5-24; 6; 20 *(140)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	30 lb *(13 kg)*	None
Height of Drawbar		18.5 in *(470 mm)*	18.5 in *(470 mm)*
Static Weight with Operator	—Rear	4485 lb *(2034 kg)*	3595 lb *(1631 kg)*
	—Front	2185 lb *(991 kg)*	2125 lb *(964 kg)*
	—Total	6670 lb *(3025 kg)*	5720 lb *(2595 kg)*

Hesston 466 DT Fiat Diesel

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 157°F *(69.5°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1484.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1485—HESSTON 666 DT FIAT DIESEL ALSO HESSTON 666, 666 DT/L AND 666/L FIAT MODELS

12 SPEED

POWER TAKE-OFF PERFORMANCE

	Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed—Two Hours (PTO Speed—614 rpm)									
	62.40 *(46.53)*	2500	3.894 *(14.740)*	0.437 *(0.266)*	16.03 *(3.157)*	186 *(85.8)*	57 *(13.8)*	75 *(23.9)*	28.853 *(97.430)*
Standard Power Take-off Speed (540 rpm)—One Hour									
	60.33 *(44.99)*	2199	3.548 *(13.431)*	0.412 *(0.251)*	17.00 *(3.350)*	186 *(85.7)*	57 *(14.1)*	76 *(24.2)*	28.860 *(97.456)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
	57.09 *(42.57)*	2692	3.682 *(13.938)*	0.452 *(0.275)*	15.50 *(3.054)*	183 *(83.9)*	58 *(14.2)*	76 *(24.4)*	....
	0.00 *(0.00)*	2906	1.297 *(4.910)*	....	....	171 *(77.2)*	57 *(13.9)*	76 *(24.4)*	....
	29.81 *(22.23)*	2808	2.368 *(8.964)*	0.557 *(0.339)*	12.59 *(2.480)*	175 *(79.4)*	57 *(13.9)*	76 *(24.4)*	....
	62.68 *(46.74)*	2502	3.896 *(14.748)*	0.436 *(0.265)*	16.09 *(3.169)*	187 *(86.1)*	58 *(14.4)*	78 *(25.6)*	....
	15.20 *(11.33)*	2864	1.811 *(6.855)*	0.835 *(0.508)*	8.39 *(1.653)*	172 *(77.8)*	58 *(14.2)*	78 *(25.3)*	....
	43.85 *(32.70)*	2758	3.001 *(11.360)*	0.480 *(0.292)*	14.61 *(2.879)*	180 *(81.9)*	57 *(13.9)*	78 *(25.6)*	....
Av *Av*	**34.77** *(25.93)*	**2755**	**2.676** *(10.130)*	**0.539** *(0.328)*	**13.00** *(2.560)*	**178** *(81.1)*	**57** *(14.1)*	**77** *(24.9)*	**28.845** *(97.405)*

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 8th (III-1) Gear											
53.38 *(39.80)*	3636 *(16.17)*	5.51 *(8.86)*	2500	6.33	3.871 *(14.654)*	0.508 *(0.309)*	13.79 *(2.716)*	189 *(86.9)*	70 *(20.8)*	76 *(24.4)*	28.660 *(96.781)*
75% of Pull at Maximum Power—Ten Hours 8th (III-1) Gear											
44.83 *(33.43)*	2772 *(12.33)*	6.06 *(9.76)*	2706	4.68	3.397 *(12.858)*	0.531 *(0.323)*	13.20 *(2.600)*	185 *(84.7)*	61 *(16.3)*	72 *(22.3)*	28.878 *(97.517)*
50% of Pull at Maximum Power—Two Hours 8th (III-1) Gear											
30.96 *(23.09)*	1848 *(8.22)*	6.28 *(10.11)*	2767	3.44	2.640 *(9.994)*	0.598 *(0.363)*	11.73 *(2.310)*	178 *(81.1)*	63 *(16.9)*	72 *(22.2)*	28.880 *(97.523)*
50% of Pull at Reduced Engine Speed—Two Hours 10th (III-2) Gear											
31.00 *(23.12)*	1849 *(8.22)*	6.29 *(10.12)*	1796	3.33	2.087 *(7.901)*	0.472 *(0.287)*	14.85 *(2.926)*	178 *(81.1)*	65 *(18.3)*	77 *(24.7)*	28.900 *(97.591)*
MAXIMUM POWER IN SELECTED GEARS											
50.33 *(37.53)*	6611 *(29.41)*	2.85 *(4.59)*	2626	14.99	5th (I-4) Gear			182 *(83.3)*	59 *(15.0)*	67 *(19.4)*	28.880 *(97.523)*
52.11 *(38.86)*	5676 *(25.25)*	3.44 *(5.54)*	2501	11.17	6th (II-2) Gear			187 *(86.1)*	68 *(20.0)*	71 *(21.7)*	28.690 *(96.882)*
53.15 *(39.63)*	4575 *(20.35)*	4.36 *(7.01)*	2501	8.32	7th (II-3) Gear			188 *(86.7)*	67 *(19.4)*	71 *(21.7)*	28.700 *(96.916)*
54.31 *(40.50)*	3696 *(16.44)*	5.51 *(8.87)*	2501	6.20	8th (III-1) Gear			188 *(86.7)*	67 *(19.4)*	71 *(21.7)*	28.700 *(96.916)*
53.03 *(39.55)*	2857 *(12.71)*	6.96 *(11.20)*	2499	4.87	9th (II-4) Gear			188 *(86.7)*	68 *(20.0)*	71 *(21.7)*	28.690 *(96.882)*
52.77 *(39.35)*	2271 *(10.10)*	8.71 *(14.02)*	2501	3.85	10th (III-2) Gear			188 *(86.7)*	68 *(20.0)*	71 *(21.7)*	28.690 *(96.882)*

Department of Agricultural Engineering

Dates of Test: June 6-17, 1983

Manufacturer: FIAT TRATTORI S.p.A., Via Pico della Mirandola, 72-41100 Modena, Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8416 **Fuel weight** 7.007 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 2.448 gal *(9.268 l)* **Drained from motor** 2.130 gal *(8.062 l)* **Transmission and final drive lubricant** API 303 hydraulic fluid **Total time engine was operated** 39.5 hours.

ENGINE: Make Fiat Diesel **Type** four cylinder vertical **Serial No.** 8045.02*276-137011* **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 3.94" × 4.33" *(100 mm × 110 mm)* **Compression ratio** 17 to 1 **Displacement** 211 cu in *(3456 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** 666DT/12*391026* **Tread width** rear 59.1" *(1500 mm)* to 78.8" *(2000 mm)* front 60.2" *(1530 mm)* to 77" *(1956 mm)* **Wheel base** 88.5" *(2248 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 36.5" *(927 mm)* Vertical distance above roadway 36.5" *(927 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph** *(km/h)* first 1.1 *(1.7)* second 1.6 *(2.6)* third 2.0 *(3.2)* fourth 2.4 *(3.9)* fifth 3.1 *(5.0)* sixth 3.8 *(6.0)* seventh 4.6 *(7.4)* eighth 5.7 *(9.2)* ninth 7.1 *(11.4)* tenth 8.8 *(14.1)* eleventh 10.7 *(17.3)* twelfth 16.6 *(26.6)* reverse 2.7 *(4.4)*, 4.2 *(6.7)*, 5.1 *(8.2)*, 7.9 *(12.7)* **Clutch** dry disc operated by foot pedal **Brakes** wet disc operated by two foot pedals which can be locked together and hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 151" *(3.84 m)* left 151" *(3.84 m)* (on concrete surface without brake) right 212" *(5.38 m)* left 212" *(5.38 m)* **Turning space diameter** (on concrete surface with brake applied) right 311" *(7.90 m)* left 311" *(7.90 m)* (on concrete surface without brake) right 433" *(11.00 m)* left 433" *(11.00 m)* **Power take-off** 540 rpm at 2199 engine rpm.

LUGGING ABILITY IN 8th (III-1) GEAR

Crankshaft Speed rpm	2501	2255	1994	1752	1492	1242
Pull—lbs *(kN)*	3696 *(16.44)*	3986 *(17.73)*	4266 *(18.98)*	4365 *(19.42)*	4535 *(20.17)*	4533 *(20.16)*
Increase in Pull %	0	8	15	18	23	23
Power—Hp *(kW)*	54.31 *(40.50)*	52.45 *(39.11)*	49.34 *(36.79)*	44.24 *(32.99)*	38.97 *(29.06)*	32.42 *(24.18)*
Speed—Mph *(km/h)*	5.51 *(8.87)*	4.93 *(7.94)*	4.34 *(6.98)*	3.80 *(6.12)*	3.22 *(5.19)*	2.68 *(4.32)*
Slip %	6.20	6.85	7.49	7.62	8.00	8.13

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB (A)
Maximum Available Power—Two Hours	94.5	93.5
75% of Pull at Maximum Power—Ten Hours		95.0
50% of Pull at Maximum Power—Two Hours		94.5
50% of Pull at Reduced Engine Speed—Two Hours		90.5
Bystander in 12th (III-4) gear		85.5

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 8th (III-1) Gear											
53.13 *(39.62)*	3542 *(15.75)*	5.63 *(9.05)*	2500	5.45	3.889 *(14.721)*	0.513 *(0.312)*	13.66 *(2.691)*	190 *(87.5)*	70 *(20.8)*	75 *(23.6)*	28.625 *(96.662)*
MAXIMUM POWER IN SELECTED GEARS											
46.24 *(34.48)*	7433 *(33.06)*	2.33 *(3.75)*	2690	14.84	4th (II-1) Gear			178 *(80.8)*	58 *(14.4)*	62 *(16.7)*	28.870 *(97.490)*
54.15 *(40.38)*	3606 *(16.04)*	5.63 *(9.06)*	2504	5.62	8th (III-1) Gear			188 *(86.7)*	66 *(18.9)*	70 *(21.1)*	28.700 *(96.916)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-30; 6; 16 *(110)*	Two 18.4-30; 6; 16 *(110)*
Ballast	—Liquid (each)	752 lb *(332 kg)*	None
	—Cast Iron (each)	445 lb *(202 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 12.4-24; 6; 24 *(165)*	Two 12.4-24; 6; 24 *(165)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	35 lb *(16 kg)*	None
Height of Drawbar		22 in *(560 mm)*	22 in *(560 mm)*
Static Weight with Operator	—Rear	6125 lb *(2778 kg)*	3770 lb *(1710 kg)*
	—Front	2590 lb *(1175 kg)*	2520 lb *(1143 kg)*
	—Total	8715 lb *(3953 kg)*	6290 lb *(2853 kg)*

Hesston 666 DT Fiat Diesel

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 151°F *(65.8°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1485.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1486
WHITE FARM EQUIPMENT-ISEKI 2-75 DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1074 rpm)								
75.39 (56.22)	2200	4.903 (18.560)	0.456 (0.277)	15.38 (3.029)	186 (85.8)	70 (21.4)	75 (23.8)	29.000 (97.929)
Standard Power Take-off Speed (1000 rpm)—One Hour								
75.64 (56.40)	2050	4.769 (18.053)	0.442 (0.269)	15.86 (3.124)	186 (85.6)	70 (21.3)	75 (24.1)	29.005 (97.946)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
66.60 (49.66)	2288	4.558 (17.254)	0.480 (0.292)	14.61 (2.878)	186 (85.6)	70 (21.4)	77 (25.0)	…… ……
0.00 (0.00)	2389	1.643 (6.219)	… ……	…… ……	184 (84.7)	70 (21.4)	76 (24.4)	…… ……
33.86 (25.25)	2326	3.000 (11.356)	0.621 (0.378)	11.29 (2.223)	186 (85.6)	70 (21.4)	76 (24.4)	…… ……
75.11 (56.01)	2200	4.887 (18.499)	0.456 (0.278)	15.37 (3.028)	187 (86.1)	71 (21.7)	78 (25.6)	…… ……
17.12 (12.77)	2350	2.345 (8.877)	0.960 (0.584)	7.30 (1.439)	184 (84.4)	71 (21.7)	77 (25.0)	…… ……
50.34 (37.54)	2304	3.779 (14.305)	0.526 (0.320)	13.32 (2.624)	186 (85.6)	72 (22.2)	80 (26.4)	…… ……
Av 40.51 **Av (30.21)**	**2310**	**3.369** **(12.753)**	**0.583** **(0.355)**	**12.02** **(2.369)**	**186** **(85.3)**	**71** **(21.6)**	**77** **(25.2)**	**29.005** **(97.946)**

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 13th (HL4) Gear											
63.58 (47.41)	3958 (17.60)	6.02 (9.70)	2198	7.43	4.886 (18.495)	0.539 (0.328)	13.01 (2.563)	190 (87.8)	74 (23.3)	81 (27.2)	28.990 (97.895)
75% of Pull at Maximum Power—Ten Hours 13th (HL4) Gear											
52.18 (38.91)	3032 (13.49)	6.45 (10.39)	2302	5.28	4.272 (16.173)	0.574 (0.349)	12.21 (2.406)	191 (88.1)	74 (23.3)	87 (30.7)	28.922 (97.665)
50% of Pull at Maximum Power—Two Hours 13th (HL4) Gear											
35.69 (26.61)	2021 (8.99)	6.62 (10.66)	2324	3.68	3.406 (12.893)	0.669 (0.407)	10.48 (2.064)	190 (87.8)	71 (21.4)	75 (23.9)	28.830 (97.355)
50% of Pull at Reduced Engine Speed—Two Hours 15th (HH3) Gear											
35.75 (26.66)	2022 (8.99)	6.63 (10.67)	1498	3.47	2.586 (9.788)	0.507 (0.308)	13.82 (2.723)	188 (86.4)	74 (23.3)	81 (27.2)	28.875 (97.507)
MAXIMUM POWER IN SELECTED GEARS											
55.85 (41.65)	6487 (28.86)	3.23 (5.20)	2287	14.95	10th (HL2) Gear			190 (87.8)	70 (21.1)	74 (23.3)	28.850 (97.422)
62.13 (46.33)	6163 (27.41)	3.78 (6.08)	2200	13.34	11th (HL3) Gear			190 (87.8)	69 (20.6)	73 (22.8)	28.840 (97.388)
63.39 (47.27)	5376 (23.91)	4.42 (7.12)	2200	11.32	12th (HH1) Gear			190 (87.8)	73 (22.8)	79 (26.1)	28.960 (97.794)
65.05 (48.51)	4042 (17.98)	6.04 (9.71)	2199	7.30	13th (HL4) Gear			190 (87.8)	75 (23.9)	78 (25.6)	28.950 (97.760)
64.96 (48.44)	3050 (13.57)	7.99 (12.85)	2200	5.52	14th (HH2) Gear			190 (87.8)	73 (22.8)	78 (25.6)	28.960 (97.794)
64.28 (47.93)	2501 (11.13)	9.64 (15.51)	2198	4.44	15th (HH3) Gear			190 (87.8)	69 (20.6)	73 (22.8)	28.830 (97.355)

Department of Agricultural Engineering

Dates of Test: August 22 to September 1, 1983

Manufacturer: ISEKI AND COMPANY, LTD.,
2-6 Kioicho Chiyoda-Ku Tokyo, Japan 102

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8419 **Fuel weight** 7.010 lbs/gal *(0.840 kg/l)* **Oil** White Farm Equipment Company Supreme Blend **SAE** 30 **API service classification** CC-CD, SD-SF **To motor** 3.575 gal *(13.531 l)* **Drained from motor** 3.311 gal *(12.534 l)* **Transmission and final drive lubricant** White Farm Equipment Company Universal fluid **Total time engine was operated** 38.0 hours.

ENGINE: Make Isuzu Diesel **Model** 6BB1 **Type** six cylinder vertical **Serial No.** 520592 **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 4.016" × 4.33" *(102 mm × 110 mm)* **Compression ratio** 17.5 to 1 **Displacement** 329 cu in *(5393 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow element **Oil cooler** engine coolant heat exchanger for crankcase oil **Fuel filter** two paper elements with sediment bowl and screen **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** 00288 M **Tread width** rear 59.0" *(1500 mm)* to 79.1" *(2010 mm)* front 61.4" *(1560 mm)* **Wheel base** 92.1" *(2340 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 34.8" *(885 mm)* Vertical distance above roadway 30.9" *(784 mm)* Horizontal distance from center of rear wheel tread 0.1" *(3 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph** *(km/h)* first 0.4 *(0.7)* second 0.7 *(1.1)* third 0.8 *(1.3)* fourth 0.9 *(1.5)* fifth 1.2 *(2.0)* sixth 1.6 *(2.6)* seventh 1.9 *(3.1)* eighth 2.2 *(3.5)* ninth 2.8 *(4.5)* tenth 3.7 *(5.9)* eleventh 4.4 *(7.1)* twelfth 5.0 *(8.0)* thirteenth 6.5 *(10.5)* fourteenth 8.4 *(13.5)* fifteenth 10.1 *(16.2)* sixteenth 14.9 *(24.0)* reverse 0.5 *(0.8)*, 1.2 *(2.0)*, 2.6 *(4.2)*, 6.5 *(10.5)* **Clutch** single dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together and hand lever **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 135" *(3.43 m)* left 135" *(3.43 m)* (on concrete surface without brake) right 188" *(4.78 m)* left 188" *(4.78 m)* **Turning space diameter** (on concrete surface with brake applied) right 280" *(7.11 m)* left 280" *(7.11 m)* (on concrete surface without brake) right 386" *(9.80 m)* left 386" *(9.80 m)* **Power take-off** 540 rpm at 1813 engine rpm and 1000 rpm at 2050 engine rpm.

LUGGING ABILITY IN 13th (HL4) GEAR

Crankshaft Speed rpm	2199	1980	1755	1540	1313	1095
Pull—lbs (kN)	4042 (17.98)	4478 (19.92)	4861 (21.62)	5084 (22.61)	5018 (22.32)	4947 (22.01)
Increase in Pull %	0	11	20	26	24	22
Power—Hp (kW)	65.05 (48.51)	64.22 (47.89)	61.07 (45.54)	55.59 (41.45)	46.80 (34.90)	38.52 (28.73)
Speed—Mph (km/h)	6.04 (9.71)	5.38 (8.65)	4.71 (7.58)	4.10 (6.60)	3.50 (5.63)	2.92 (4.70)
Slip %	7.30	8.26	9.38	10.12	10.00	9.88

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	94.5	94.5
75% of Pull at Maximum Power—Ten Hours		95.0
50% of Pull at Maximum Power—Two Hours		95.0
50% of Pull at Reduced Engine Speed—Two Hours		92.0
Bystander in 16th (HH4) gear		84.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 13th (HL4) Gear											
64.07 (47.78)	3863 (17.18)	6.22 (10.01)	2199	5.28	4.904 (18.563)	0.536 (0.326)	13.07 (2.574)	191 (88.1)	75 (23.6)	83 (28.1)	28.995 (97.912)
MAXIMUM POWER IN SELECTED GEARS											
54.43 (40.59)	8028 (35.71)	2.54 (4.09)	2294	14.85	9th (LH4) Gear			191 (88.1)	70 (21.1)	75 (23.9)	28.860 (97.456)
64.79 (48.32)	3907 (17.38)	6.22 (10.01)	2200	5.42	13th (HL4) Gear			189 (87.2)	75 (23.9)	79 (26.1)	28.950 (97.760)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9-34; 6; 16 *(110)*	Two 16.9-34; 6; 16 *(110)*
Ballast	—Liquid (each)	473 lb *(214 kg)*	None
	—Cast Iron (each)	350 lb *(159 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.2-24; 6; 20 *(140)*	Two 11.2-24; 6; 20 *(140)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	30 lb *(14 kg)*	None
Height of Drawbar		19 in *(485 mm)*	19 in *(485 mm)*
Static Weight with Operator	—Rear	6625 lb *(3005 kg)*	4980 lb *(2259 kg)*
	—Front	3000 lb *(1361 kg)*	2940 lb *(1334 kg)*
	—Total	9625 lb *(4366 kg)*	7920 lb *(3593 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 150°F *(65.6°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1486.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
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Board of Tractor Test Engineers

White Farm Equipment-Iseki 2-75 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1487—WHITE FARM EQUIPMENT 2-88 DIESEL 18 SPEED

POWER TAKE-OFF PERFORMANCE

	Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
	MAXIMUM POWER AND FUEL CONSUMPTION								
	Rated Engine Speed—Two Hours (PTO Speed—1007 rpm)								
	86.78 (64.71)	2200	5.524 (20.911)	0.446 (0.271)	15.71 (3.094)	185 (84.9)	70 (21.1)	75 (23.8)	28.943 (97.737)
	VARYING POWER AND FUEL CONSUMPTION—Two Hours								
	75.83 (56.55)	2262	4.930 (18.662)	0.456 (0.277)	15.38 (3.030)	182 (83.6)	70 (21.1)	76 (24.2)	......
	0.00 (0.00)	2362	1.755 (6.643)	.....	.....	172 (78.1)	70 (20.8)	74 (23.6)	......
	38.61 (28.79)	2304	3.218 (12.181)	0.584 (0.355)	12.00 (2.364)	176 (79.7)	69 (20.6)	75 (23.9)	......
	87.61 (65.33)	2200	5.568 (21.077)	0.446 (0.271)	15.74 (3.100)	185 (85.0)	68 (20.3)	74 (23.6)	......
	19.59 (14.61)	2339	2.495 (9.445)	0.893 (0.543)	7.85 (1.547)	174 (78.6)	69 (20.6)	75 (23.9)	......
	57.08 (42.56)	2270	3.997 (15.130)	0.491 (0.299)	14.28 (2.813)	177 (80.6)	69 (20.6)	76 (24.2)	......
Av Av	46.45 (34.64)	2290	3.660 (13.855)	0.552 (0.336)	12.69 (2.500)	178 (80.9)	69 (20.7)	75 (23.9)	28.963 (97.805)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 11th (4D) Gear											
73.81 (55.04)	4253 (18.92)	6.51 (10.48)	2200	4.16	5.421 (20.520)	0.515 (0.313)	13.62 (2.682)	187 (86.1)	73 (22.5)	84 (28.6)	29.030 (98.030)
75% of Pull at Maximum Power—Ten Hours 11th (4D) Gear											
58.81 (43.85)	3228 (14.36)	6.83 (10.99)	2281	3.14	4.615 (17.469)	0.550 (0.335)	12.74 (2.510)	184 (84.2)	71 (21.8)	85 (29.4)	28.987 (97.885)
50% of Pull at Maximum Power—Two Hours 11th (4D) Gear											
40.22 (29.99)	2153 (9.57)	7.01 (11.28)	2318	2.16	3.727 (14.108)	0.650 (0.395)	10.79 (2.126)	180 (81.9)	68 (19.7)	82 (27.5)	28.915 (97.642)
50% of Pull at Reduced Engine Speed—Two Hours 15th (5O) Gear											
40.21 (29.98)	2152 (9.57)	7.01 (11.28)	1383	2.21	2.996 (11.340)	0.522 (0.318)	13.42 (2.644)	186 (85.6)	71 (21.4)	92 (33.1)	28.905 (97.608)
MAXIMUM POWER IN SELECTED GEARS											
54.58 (40.70)	9486 (42.20)	2.16 (3.47)	2272	14.60	3rd (1O) Gear			180 (82.2)	64 (17.8)	73 (22.8)	28.910 (97.625)
69.25 (51.64)	9192 (40.89)	2.83 (4.55)	2200	13.48	4th (2U) Gear			183 (83.9)	65 (18.3)	75 (23.9)	28.910 (97.625)
72.93 (54.38)	7665 (34.10)	3.57 (5.74)	2199	9.22	5th (2D) Gear			185 (85.0)	72 (22.2)	78 (25.6)	29.030 (98.030)
71.75 (53.50)	7179 (31.93)	3.75 (6.03)	2200	8.26	6th (3U) Gear			184 (84.2)	71 (21.7)	77 (25.0)	29.030 (98.030)
73.11 (54.52)	6246 (27.78)	4.39 (7.06)	2199	6.97	7th (2O) Gear			184 (84.4)	71 (21.7)	76 (24.4)	29.020 (97.996)
73.37 (54.71)	5977 (26.58)	4.60 (7.41)	2199	6.35	8th (3D) Gear			183 (83.6)	71 (21.7)	75 (23.9)	29.020 (97.996)
73.69 (54.95)	5177 (23.03)	5.34 (8.59)	2199	5.41	9th (4U) Gear			183 (83.6)	71 (21.7)	74 (23.3)	29.020 (97.996)
72.61 (54.15)	4855 (21.60)	5.61 (9.03)	2199	5.01	10th (3O) Gear			183 (83.9)	70 (21.1)	73 (22.8)	29.020 (97.996)
74.67 (55.68)	4304 (19.14)	6.51 (10.47)	2200	4.37	11th (4D) Gear			183 (83.6)	68 (20.0)	71 (21.7)	29.010 (97.962)
72.60 (54.14)	3584 (15.94)	7.60 (12.23)	2199	3.63	12th (5U) Gear			185 (85.0)	72 (22.2)	79 (26.1)	29.030 (98.030)
73.08 (54.49)	3479 (15.47)	7.88 (12.68)	2200	3.38	13th (4O) Gear			185 (84.7)	72 (22.2)	79 (26.1)	29.040 (98.064)
72.74 (54.25)	2961 (13.17)	9.21 (14.83)	2199	2.71	14th (5D) Gear			186 (85.3)	72 (22.2)	80 (26.7)	29.040 (98.064)

Department of Agricultural Engineering

Dates of Test: August 22 to September 7, 1983

Manufacturer: WHITE FARM EQUIPMENT COMPANY, 2625 Butterfield Road, Oak Brook, Illinois 60521

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8419 **Fuel weight** 7.010 lbs/gal *(0.840 kg/l)* **Oil** White Farm Equipment Company Supreme Blend **SAE** 30 **API service classification** CC-CD, SD-SF **To motor** 3.921 gal *(14.843 l)* **Drained from motor** 3.170 gal *(11.999 l)* **Transmission and final drive lubricant** White Farm Equipment Company Universal fluid **Front axle lubricant** SAE 80-90 multi-purpose gear lubricant **Total time engine was operated** 75.0 hours.

ENGINE: Make Perkins Diesel **Type** six cylinder vertical **Serial No.** TW70008U654266H **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 3.875" × 5.00" *(98.4 mm × 127 mm)* **Compression ratio** 16 to 1 **Displacement** 354 cu in *(5802 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and hydraul shift oil **Fuel filter** two paper elements and water separator **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type front wheel assist **Serial No.** 301650-441 **Tread width** rear 63" *(1600 mm)* to 111" *(2820 mm)* front 66" *(1676 mm)* to 80" *(2032 mm)* **Wheel base** 86.3" *(2191 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 34.9" *(886 mm)* Vertical distance above roadway 42.0" *(1067 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (3) range operator controlled powershift **Advertised speeds mph** *(km/h)* first 1.6 *(2.6)* second 2.0 *(3.2)* third 2.3 *(3.7)* fourth 3.1 *(5.0)* fifth 3.8 *(6.1)* sixth 3.9 *(6.3)* seventh 4.5 *(7.2)* eighth 4.7 *(7.6)* ninth 5.4 *(8.7)* tenth 5.7 *(9.2)* eleventh 6.5 *(10.5)* twelfth 7.6 *(12.2)* thirteenth 7.8 *(12.6)* fourteenth 9.1 *(14.6)* fifteenth 10.9 *(17.5)* sixteenth 13.1 *(21.1)* seventeenth 15.7 *(25.3)* eighteenth 18.9 *(30.4)* reverse 1.8 *(2.9)*, 2.2 *(3.5)*, 2.6 *(4.2)*, 4.4 *(7.1)*, 5.3 *(8.5)*, 6.4 *(10.3)* **Clutch** single dry disc operated by foot pedal **Brakes** multiple dry disc hydraulically power actuated and operated by two foot pedals which can be locked together and mechanically by hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 195" *(4.95 m)* left 195" *(4.95 m)* (on concrete surface without brake) right 233" *(5.92 m)* left 233" *(5.92 m)* **Turning space diameter** (on concrete surface with brake applied) right 406" *(10.31 m)* left 406" *(10.31 m)* (on concrete surface without brake) right 482" *(12.24 m)* left 482" *(12.24 m)* **Power take-off** 540 rpm at 2192 engine rpm and 1007 rpm at 2200 engine rpm.

LUGGING ABILITY IN 11th (4D) GEAR

Crankshaft Speed rpm	2200	1982	1757	1539	1310	1094
Pull—lbs (kN)	4304 (19.14)	4614 (20.52)	4756 (21.16)	4837 (21.52)	4934 (21.95)	4923 (21.90)
Increase in Pull %	0	7	11	12	15	14
Power—Hp (kW)	74.67 (55.68)	71.87 (53.60)	65.50 (48.84)	58.31 (43.48)	50.57 (37.71)	42.09 (31.39)
Speed—Mph (km/h)	6.51 (10.47)	5.84 (9.40)	5.16 (8.31)	4.52 (7.27)	3.84 (6.19)	3.21 (5.16)
Slip %	4.37	4.61	4.93	5.09	5.25	5.25

TRACTOR SOUND LEVEL WITH CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	75.0	75.5
75% of Pull at Maximum Power—Ten Hours		75.5
50% of Pull at Maximum Power—Two Hours		74.0
50% of Pull at Reduced Engine Speed—Two Hours		73.5
Bystander in 17th (6D) gear		88.0

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 11th (4D) Gear											
73.38 (54.72)	4121 (18.33)	6.68 (10.75)	2200	2.72	5.421 (20.520)	0.518 (0.315)	13.54 (2.667)	189 (86.9)	72 (22.2)	88 (30.8)	29.015 (97.979)
MAXIMUM POWER IN SELECTED GEARS											
60.50 (45.12)	12632 (56.19)	1.80 (2.89)	2254	14.93	2nd (1D) Gear			180 (82.2)	63 (17.2)	70 (21.1)	28.910 (97.625)
74.11 (55.26)	4167 (18.53)	6.67 (10.73)	2201	2.77	11th (4D) Gear			182 (83.3)	67 (19.4)	69 (20.6)	29.000 (97.929)

TIRES, BALLAST AND WEIGHT		**Tested Without Ballast**
Rear Tires	—No., size, ply & psi *(kPa)*	Two 20.8-38; 8; 16 *(110)*
Ballast	—Liquid (each)	None
	—Cast Iron (each)	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 16.9-26; 8; 16 *(110)*
Ballast	—Liquid (each)	None
	—Cast Iron (each)	None
Height of Drawbar		21 in *(533 mm)*
Static Weight with Operator	—Rear	8115 lb *(3681 kg)*
	—Front	5500 lb *(2495 kg)*
	—Total	13615 lb *(6176 kg)*

REPAIRS and ADJUSTMENTS: During the 2 HR maximum drawbar test, if was found that the horsepower increased due to an injection pump setting change. All tests were rerun after pump was readjusted.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 157°F *(69.5°C)*. Twelve gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1487.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

White Farm Equipment 2-88 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1491—FORD 2910 (8x2) DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—600 rpm)								
36.62 *(27.31)*	2000	2.332 *(8.828)*	0.446 *(0.271)*	15.71 *(3.094)*	188 *(86.6)*	58 *(14.4)*	75 *(24.0)*	29.220 *(98.672)*
Standard Power Take-off Speed (540 rpm)—One Hour								
35.09 *(26.17)*	1800	2.187 *(8.279)*	0.456 *(0.265)*	16.04 *(3.161)*	188 *(86.7)*	57 *(13.9)*	75 *(23.9)*	29.250 *(98.773)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
31.69 *(23.63)*	2035	2.079 *(7.870)*	0.459 *(0.279)*	15.24 *(3.003)*	184 *(84.7)*	56 *(13.3)*	74 *(23.3)*	......
0.00 *(0.00)*	2126	0.767 *(2.903)*	.....	.....	150 *(65.6)*	56 *(13.3)*	74 *(23.1)*	......
16.22 *(12.10)*	2084	1.389 *(5.258)*	0.599 *(0.365)*	11.68 *(2.301)*	157 *(69.4)*	56 *(13.6)*	75 *(23.9)*	......
36.83 *(27.46)*	1999	2.340 *(8.858)*	0.445 *(0.271)*	15.74 *(3.101)*	188 *(86.9)*	57 *(13.9)*	76 *(24.4)*	......
8.19 *(6.11)*	2106	1.054 *(3.990)*	0.901 *(0.548)*	7.77 *(1.531)*	152 *(66.9)*	56 *(13.3)*	74 *(23.3)*	......
24.04 *(17.93)*	2060	1.723 *(6.522)*	0.502 *(0.305)*	13.95 *(2.749)*	170 *(76.4)*	56 *(13.6)*	76 *(24.2)*	......
Av 19.50 **Av *(14.54)***	**2068**	**1.559** ***(5.901)***	**0.559** ***(0.340)***	**12.51** ***(2.464)***	**167** ***(75.0)***	**56** ***(13.3)***	**75** ***(23.7)***	**29.240** ***(98.739)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 5th Gear											
29.09 *(21.69)*	1886 *(8.39)*	5.78 *(9.31)*	2000	5.09	2.207 *(8.356)*	0.531 *(0.323)*	13.18 *(2.596)*	191 *(88.3)*	66 *(18.6)*	78 *(25.6)*	29.085 *(98.216)*
75% of Pull at Maximum Power—Ten Hours 5th Gear											
23.71 *(17.68)*	1485 *(6.61)*	5.99 *(9.64)*	2041	3.72	1.926 *(7.291)*	0.569 *(0.346)*	12.31 *(2.425)*	187 *(86.1)*	66 *(19.1)*	80 *(26.7)*	28.952 *(97.767)*
50% of Pull at Maximum Power—Two Hours 5th Gear											
16.19 *(12.07)*	990 *(4.40)*	6.13 *(9.87)*	2066	2.60	1.543 *(5.841)*	0.667 *(0.406)*	10.49 *(2.067)*	182 *(83.1)*	66 *(18.6)*	86 *(30.0)*	29.060 *(98.131)*
50% of Pull at Reduced Engine Speed—Two Hours 6th Gear											
16.22 *(12.09)*	990 *(4.40)*	6.14 *(9.89)*	1655	2.34	1.357 *(5.138)*	0.586 *(0.356)*	11.95 *(2.354)*	186 *(85.3)*	65 *(18.3)*	89 *(31.4)*	29.015 *(97.979)*
MAXIMUM POWER IN SELECTED GEARS											
21.00 *(15.66)*	4237 *(18.85)*	1.86 *(2.99)*	2049	14.78		2nd Gear		163 *(72.5)*	55 *(12.8)*	57 *(13.9)*	29.060 *(98.131)*
29.07 *(21.68)*	3208 *(14.27)*	3.40 *(5.47)*	2000	8.98		3rd Gear		187 *(86.1)*	56 *(13.3)*	59 *(15.0)*	29.070 *(98.165)*
29.62 *(22.09)*	2333 *(10.38)*	4.76 *(7.66)*	1999	6.24		4th Gear		187 *(86.1)*	58 *(14.4)*	62 *(16.7)*	29.080 *(98.199)*
30.45 *(22.71)*	1980 *(8.81)*	5.77 *(9.28)*	1997	5.25		5th Gear		189 *(87.2)*	62 *(16.7)*	71 *(21.7)*	29.100 *(98.266)*
29.75 *(22.19)*	1533 *(6.82)*	7.28 *(11.72)*	1997	4.13		6th Gear		188 *(86.7)*	59 *(15.0)*	65 *(18.3)*	29.090 *(98.233)*

LUGGING ABILITY IN 5th GEAR

Crankshaft Speed rpm	1997	1800	1606	1395	1194	994
Pull—lbs *(kN)*	1980 *(8.81)*	2136 *(9.50)*	2248 *(10.00)*	2321 *(10.32)*	2343 *(10.42)*	2336 *(10.39)*
Increase in Pull %	0	8	14	17	18	18
Power—Hp *(kW)*	30.45 *(22.71)*	29.47 *(21.98)*	27.58 *(20.57)*	24.68 *(18.40)*	21.31 *(15.89)*	17.67 *(13.18)*
Speed—Mph *(km/h)*	5.77 *(9.28)*	5.17 *(8.33)*	4.60 *(7.40)*	3.99 *(6.42)*	3.41 *(5.49)*	2.84 *(4.57)*
Slip %	5.25	5.39	6.02	6.13	6.13	6.24

Department of Agricultural Engineering

Dates of Test: September 14-28, 1983

Manufacturer: FORD MOTOR COMPANY, Ford Tractor Operations, 2500 East Maple Road, Troy, Michigan 48084

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8406 **Fuel weight** 6.999 lbs/gal *(0.839 kg/l)* **Oil SAE** 30 **API service classification** SE-SF, CC-CD **To motor** 1.411 gal *(5.341 l)* **Drained from motor** 1.271 gal *(4.810 l)* **Transmission and final drive lubricant** Ford 134 fluid **Total time engine was operated** 38.0 hours.

ENGINE: Make Ford Diesel **Type** three cylinder vertical **Serial No.** *B698152* **Crankshaft** lengthwise **Rated rpm** 2000 **Bore and stroke** 4.2" × 4.2" *(106.7 mm × 106.7 mm)* **Compression ratio** 17.3 to 1 **Displacement** 175 cu in *(2868 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *C699558* **Tread width** rear 56" *(1422 mm)* to 80" *(2032 mm)* front 52" *(1320 mm)* to 80" *(2032 mm)* **Wheel base** 77.5" *(1969 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 28.5" *(724 mm)* Vertical distance above roadway 28.1" *(715 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.7 *(2.8)* second 2.2 *(3.5)* third 3.8 *(6.1)* fourth 5.1 *(8.3)* fifth 6.2 *(9.9)* sixth 7.7 *(12.3)* seventh 13.5 *(21.7)* eighth 18.3 *(29.5)* reverse 2.5 *(4.0)*, 8.8 *(14.2)* **Clutch** single plate dry disc operated by foot pedal **Brakes** wet multiple disc operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 114" *(2.89 m)* left 114" *(2.89 m)* (on concrete surface without brake) right 136" *(3.45 m)* left 136" *(3.45 m)* **Turning space diameter** (on concrete surface with brake applied) right 233" *(5.92 m)* left 233" *(5.92 m)* (on concrete surface without brake) right 275" *(6.98 m)* left 275" *(6.98 m)* **Power take-off** 540 rpm at 1800 engine rpm.

REPAIRS and ADJUSTMENTS: The fuel injectors were replaced during preliminary PTO tests.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	96.0
75% of Pull at Maximum Power—Ten Hours	95.5
50% of Pull at Maximum Power—Two Hours	93.5
50% of Pull at Reduced Engine Speed—Two Hours	92.0
Bystander in 8th gear	85.0

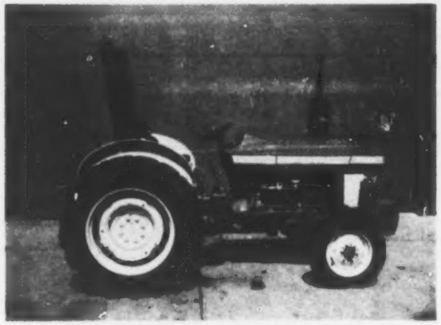
TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 13.6-28; 4; 14 *(95)*	Two 13.6-28; 4; 14 *(95)*
Ballast	—Liquid (each)	470 lb. *(213 kg)*	None
	—Cast Iron (each)	133 lb *(60 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 6.00-16; 4; 36 *(250)*	Two 6.00-16; 4; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	45 lb *(21 kg)*	None
Height of Drawbar		16.5 in *(420 mm)*	16.5 in *(420 mm)*
Static Weight with Operator	—Rear	4150 lb *(1882 kg)*	2945 lb *(1336 kg)*
	—Front	1775 lb *(805 kg)*	1685 lb *(764 kg)*
	—Total	5925 lb *(2687 kg)*	4630 lb *(2100 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 139°F *(59.4°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. During inspection the exhaust valve seats were found to be pitted.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1491.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Ford 2910 (8x2) Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1492—FORD 2910 (8x4) DIESEL
8 SPEED

POWER TAKE-OFF PERFORMANCE

	Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed—Two Hours (PTO Speed—600 rpm)									
	36.40 *(27.14)*	2000	2.336 *(8.843)*	0.449 *(0.273)*	15.58 *(3.069)*	190 *(87.7)*	68 *(19.9)*	75 *(23.8)*	28.767 *(97.141)*
Standard Power Take-off Speed (540 rpm)—One Hour									
	34.75 *(25.91)*	1799	2.179 *(8.248)*	0.439 *(0.267)*	15.95 *(3.141)*	190 *(87.8)*	69 *(20.3)*	75 *(24.1)*	28.765 *(97.135)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
	31.84 *(23.74)*	2058	2.105 *(7.968)*	0.463 *(0.281)*	15.13 *(2.979)*	186 *(85.6)*	68 *(20.0)*	76 *(24.4)*	....
	0.00 *(0.00)*	2146	0.763 *(2.888)*	....	....	181 *(82.8)*	67 *(19.4)*	75 *(23.9)*	....
	16.31 *(12.16)*	2109	1.393 *(5.273)*	0.598 *(0.364)*	11.71 *(2.306)*	184 *(84.2)*	67 *(19.4)*	75 *(23.9)*	....
	36.66 *(27.34)*	2000	2.336 *(8.843)*	0.446 *(0.271)*	15.69 *(3.092)*	190 *(87.5)*	67 *(19.4)*	76 *(24.2)*	....
	8.26 *(6.16)*	2132	1.067 *(4.039)*	0.905 *(0.550)*	7.74 *(1.525)*	180 *(82.2)*	66 *(19.2)*	76 *(24.4)*	....
	24.26 *(18.09)*	2092	1.663 *(6.295)*	0.480 *(0.292)*	14.59 *(2.874)*	185 *(85.0)*	65 *(18.3)*	76 *(24.4)*	....
Av *Av*	**19.56** *(14.59)*	**2089**	**1.555** *(5.886)*	**0.556** *(0.338)*	**12.58** *(2.479)*	**184** *(84.6)*	**67** *(19.3)*	**76** *(24.2)*	**28.755** *(97.101)*

DRAWBAR PERFORMANCE

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 5th Gear											
30.10 *(22.44)*	1977 *(8.79)*	5.71 *(9.19)*	2001	5.06	2.315 *(8.762)*	0.538 *(0.327)*	13.00 *(2.562)*	193 *(89.4)*	62 *(16.7)*	78 *(25.3)*	28.870 *(97.490)*
75% of Pull at Maximum Power—Ten Hours 5th Gear											
24.62 *(18.36)*	1537 *(6.84)*	6.01 *(9.67)*	2079	3.85	2.012 *(7.615)*	0.572 *(0.348)*	12.24 *(2.411)*	191 *(88.4)*	71 *(21.4)*	82 *(28.0)*	28.560 *(96.443)*
50% of Pull at Maximum Power—Two Hours 5th Gear											
16.87 *(12.58)*	1025 *(4.56)*	6.17 *(9.93)*	2112	2.75	1.593 *(6.030)*	0.661 *(0.402)*	10.59 *(2.087)*	186 *(85.6)*	60 *(15.3)*	75 *(23.9)*	28.875 *(97.507)*
50% of Pull at Reduced Engine Speed—Two Hours 6th Gear											
16.86 *(12.57)*	1025 *(4.56)*	6.17 *(9.93)*	1448	2.60	1.293 *(4.895)*	0.537 *(0.327)*	13.04 *(2.569)*	186 *(85.3)*	60 *(15.3)*	75 *(23.6)*	28.825 *(97.338)*
MAXIMUM POWER IN SELECTED GEARS											
24.59 *(18.34)*	4223 *(18.78)*	2.18 *(3.51)*	2072	14.84		2nd Gear		187 *(86.1)*	53 *(11.7)*	60 *(15.6)*	28.960 *(97.794)*
29.96 *(22.34)*	3448 *(15.34)*	3.26 *(5.24)*	2002	10.11		3rd Gear		189 *(87.2)*	54 *(12.2)*	61 *(16.1)*	28.960 *(97.794)*
30.06 *(22.42)*	2280 *(10.14)*	4.94 *(7.96)*	2000	6.08		4th Gear		189 *(87.2)*	55 *(12.8)*	63 *(17.2)*	28.960 *(97.794)*
31.03 *(23.14)*	2049 *(9.11)*	5.68 *(9.14)*	1999	5.48		5th Gear		189 *(87.2)*	56 *(13.3)*	65 *(18.3)*	28.960 *(97.794)*
29.94 *(22.33)*	1332 *(5.93)*	8.43 *(13.57)*	2001	3.68		6th Gear		189 *(87.2)*	54 *(12.2)*	62 *(16.7)*	28.960 *(97.794)*

LUGGING ABILITY IN 5th GEAR

Crankshaft Speed rpm	1999	1809	1593	1383	1219	985
Pull—lbs *(kN)*	2049 *(9.11)*	2183 *(9.71)*	2291 *(10.19)*	2375 *(10.56)*	2369 *(10.54)*	2370 *(10.54)*
Increase in Pull %	0	7	12	16	16	16
Power—Hp *(kW)*	31.03 *(23.14)*	29.81 *(22.23)*	27.46 *(20.48)*	24.64 *(18.37)*	21.67 *(16.16)*	17.51 *(13.05)*
Speed—Mph *(km/h)*	5.68 *(9.14)*	5.12 *(8.24)*	4.49 *(7.23)*	3.89 *(6.26)*	3.43 *(5.52)*	2.77 *(4.46)*
Slip %	5.48	5.92	6.14	6.46	6.46	6.46

Department of Agricultural Engineering

Dates of Test: September 14-26, 1983

Manufacturer: FORD MOTOR COMPANY, Ford Tractor Operations, 2500 East Maple Road, Troy, Michigan 48084

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8406 **Fuel weight** 6.999 lbs/gal *(0.829 kg/l)* **Oil SAE** 30 **API service classification** SE-SF, CC-CD **To motor** 1.472 gal *(5.570 l)* **Drained from motor** 1.300 gal *(4.921 l)* **Transmission and final drive lubricant** Ford 134 fluid **Total time engine was operated** 39.0 hours.

ENGINE: **Make** Ford Diesel **Type** three cylinder vertical **Serial No.** *B703582* **Crankshaft** lengthwise **Rated rpm** 2000 **Bore and stroke** 4.2" × 4.2" *(106.7 mm × 106.7 mm)* **Compression ratio** 17.3 to 1 **Displacement** 175 cu in *(2868 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** standard **Serial No.** *C699559* **Tread width** rear 56" *(1422 mm)* to 80" *(2032 mm)* front 52" *(1320 mm)* to 80" *(2032 mm)* **Wheel base** 77.5" *(1969 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 28.5" *(724 mm)* Vertical distance above roadway 28.1" *(715 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.7 *(2.7)* second 2.5 *(4.0)* third 3.6 *(5.8)* fourth 5.3 *(8.5)* fifth 6.1 *(9.8)* sixth 8.8 *(14.2)* seventh 12.9 *(20.8)* eighth 19.1 *(30.7)* reverse 2.2 *(3.5)*, 3.2 *(5.1)*, 4.7 *(7.6)*, 6.9 *(11.1)* **Clutch** single plate dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 114" *(2.89 m)* left 114" *(2.89 m)* (on concrete surface without brake) right 136" *(3.45 m)* left 136" *(3.45 m)* **Turning space diameter** (on concrete surface with brake applied) right 233" *(5.92 m)* left 233" *(5.92 m)* (on concrete surface without brake) right 275" *(6.98 m)* left 275" *(6.98 m)* **Power take-off** 540 rpm at 1799 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	94.5
75% of Pull at Maximum Power—Ten Hours	95.0
50% of Pull at Maximum Power—Two Hours	94.0
50% of Pull at Reduced Engine Speed—Two Hours	91.5
Bystander in 8th gear	86.0

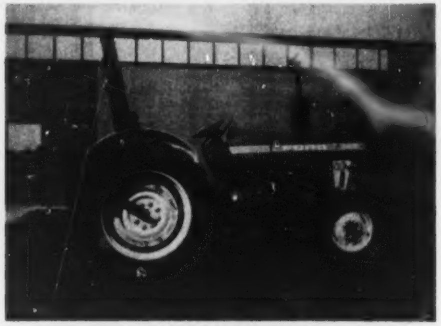
TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 13.6-28; 4; 14 *(95)*	Two 13.6-28; 4; 14 *(95)*
Ballast	—Liquid (each)	467 lb *(212 kg)*	None
	—Cast Iron (each)	133 lb *(60 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 6.00-16; 4; 36 *(250)*	Two 6.00-16; 4; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	52 lb *(24 kg)*	None
Height of Drawbar		16.5 in *(420 mm)*	16.5 in *(420 mm)*
Static Weight with Operator	—Rear	4150 lb *(1882 kg)*	2950 lb *(1338 kg)*
	—Front	1805 lb *(819 kg)*	1700 lb *(771 kg)*
	—Total	5955 lb *(2701 kg)*	4650 lb *(2109 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 139°F *(59.6°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1492**.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Ford 2910 (8x4) Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1493—FORD 3910 (8x2) DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crankshaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—600 rpm)								
42.62 *(31.78)*	2000	2.760 *(10.448)*	0.453 *(0.276)*	15.44 *(3.042)*	193 *(89.3)*	57 *(13.8)*	75 *(23.8)*	29.183 *(98.548)*
Standard Power Take-off Speed (540 rpm)—One Hour								
40.39 *(30.12)*	1799	2.546 *(9.638)*	0.441 *(0.268)*	15.86 *(3.125)*	195 *(90.5)*	57 *(13.9)*	75 *(23.8)*	29.180 *(98.536)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
37.13 *(27.69)*	2049	2.452 *(9.282)*	0.462 *(0.281)*	15.14 *(2.983)*	186 *(85.3)*	56 *(13.6)*	76 *(24.2)*	......
0.00 *(0.00)*	2137	0.883 *(3.343)*	.....	.....	152 *(66.9)*	56 *(13.6)*	75 *(23.9)*	......
19.04 *(14.20)*	2100	1.603 *(6.068)*	0.589 *(0.358)*	11.88 *(2.340)*	156 *(69.2)*	56 *(13.3)*	74 *(23.3)*	......
43.04 *(32.09)*	2000	2.773 *(10.497)*	0.451 *(0.274)*	15.52 *(3.057)*	192 *(88.9)*	56 *(13.3)*	74 *(23.3)*	......
9.58 *(7.14)*	2114	1.234 *(4.671)*	0.902 *(0.549)*	7.76 *(1.529)*	162 *(71.9)*	56 *(13.3)*	74 *(23.3)*	......
28.16 *(21.00)*	2072	2.027 *(7.673)*	0.504 *(0.307)*	13.89 *(2.737)*	184 *(84.4)*	58 *(14.2)*	77 *(25.0)*	......
Av 22.83 **Av *(17.02)***	**2079**	**1.829** ***(6.924)***	**0.561** ***(0.341)***	**12.48** ***(2.458)***	**172** ***(77.8)***	**56** ***(13.6)***	**75** ***(23.8)***	**29.180** ***(98.536)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 5th Gear											
35.62 *(26.56)*	2250 *(10.01)*	5.94 *(9.55)*	2000	5.49	2.672 *(10.114)*	0.525 *(0.319)*	13.33 *(2.626)*	188 *(86.4)*	43 *(6.1)*	54 *(11.9)*	29.245 *(98.756)*
75% of Pull at Maximum Power—Ten Hours 5th Gear											
28.99 *(21.62)*	1755 *(7.81)*	6.19 *(9.97)*	2058	4.21	2.290 *(8.670)*	0.553 *(0.336)*	12.66 *(2.493)*	181 *(82.9)*	45 *(7.2)*	57 *(13.6)*	29.182 *(98.543)*
50% of Pull at Maximum Power—Two Hours 5th Gear											
19.89 *(14.84)*	1170 *(5.20)*	6.38 *(10.26)*	2092	3.01	1.857 *(7.031)*	0.653 *(0.397)*	10.71 *(2.110)*	150 *(65.3)*	45 *(6.9)*	57 *(13.6)*	29.220 *(98.672)*
50% of Pull at Reduced Engine Speed—Two Hours 6th Gear											
19.92 *(14.85)*	1170 *(5.20)*	6.38 *(10.27)*	1676	2.89	1.615 *(6.112)*	0.567 *(0.345)*	12.34 *(2.430)*	150 *(65.6)*	44 *(6.7)*	57 *(13.6)*	29.185 *(98.553)*
MAXIMUM POWER IN SELECTED GEARS											
25.20 *(18.79)*	4931 *(21.93)*	1.92 *(3.08)*	2054	14.99		2nd Gear		178 *(80.8)*	47 *(8.3)*	53 *(11.7)*	28.950 *(97.760)*
35.24 *(26.28)*	3811 *(16.95)*	3.47 *(5.58)*	2001	9.96		3rd Gear		188 *(86.7)*	43 *(6.1)*	50 *(10.0)*	29.240 *(98.739)*
36.28 *(27.05)*	2786 *(12.39)*	4.88 *(7.86)*	2000	6.81		4th Gear		188 *(86.7)*	44 *(6.7)*	51 *(10.6)*	29.250 *(98.773)*
37.02 *(27.60)*	2340 *(10.41)*	5.93 *(9.55)*	2000	5.52		5th Gear		188 *(86.4)*	42 *(5.6)*	52 *(11.1)*	29.260 *(98.807)*
36.13 *(26.95)*	1805 *(8.03)*	7.51 *(12.08)*	2002	4.31		6th Gear		188 *(86.7)*	44 *(6.7)*	52 *(11.1)*	29.250 *(98.773)*

LUGGING ABILITY IN 5th GEAR

Crankshaft Speed rpm	2000	1801	1598	1403	1203	1009
Pull—lbs *(kN)*	2340 *(10.41)*	2462 *(10.95)*	2595 *(11.54)*	2716 *(12.08)*	2719 *(12.09)*	2713 *(12.07)*
Increase in Pull %	0	5	11	16	16	16
Power—Hp *(kW)*	37.02 *(27.60)*	34.97 *(26.07)*	32.55 *(24.27)*	29.79 *(22.22)*	25.55 *(19.05)*	21.38 *(15.95)*
Speed—Mph *(km/h)*	5.93 *(9.55)*	5.33 *(8.57)*	4.70 *(7.57)*	4.11 *(6.62)*	3.52 *(5.67)*	2.96 *(4.76)*
Slip %	5.52	5.80	6.36	6.70	6.81	6.70

Department of Agricultural Engineering

Dates of Test: September 14-26, 1983

Manufacturer: FORD MOTOR COMPANY, Ford Tractor Operations, 2500 East Maple Road, Troy, Michigan 48084

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8406 **Fuel weight** 6.999 lbs/gal *(0.839 kg/l)* **Oil SAE** 30 **API service classification** SE-SF, CC-CD **To motor** 1.372 gal *(5.194 l)* **Drained from motor** 1.220 gal *(4.618 l)* **Transmission and final drive lubricant** Ford 134 fluid **Total time engine was operated** 44.0 hours.

ENGINE: Make Ford Diesel **Type** three cylinder vertical **Serial No.** *C699116* **Crankshaft** lengthwise **Rated rpm** 2000 **Bore and stroke** 4.4" × 4.2" *(112 mm × 107 mm)* **Compression ratio** 16.3 to 1 **Displacement** 192 cu in *(3147 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *C699560* **Tread width** rear 60" *(1525 mm)* to 80" *(2032 mm)* front 52" *(1320 mm)* to 80" *(2032 mm)* **Wheel base** 77.5" *(1969 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 28.7" *(729 mm)* Vertical distance above roadway 33.2" *(842 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.8 *(2.9)* second 2.2 *(3.5)* third 3.9 *(6.3)* fourth 5.2 *(8.4)* fifth 6.3 *(10.1)* sixth 7.8 *(12.5)* seventh 13.7 *(22.0)* eighth 18.8 *(30.2)* reverse 2.5 *(4.0)*, 9.0 *(14.5)* **Clutch** single plate dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 114" *(2.89 m)* left 114" *(2.89 m)* (on concrete surface without brake) right 136" *(3.45 m)* left 136" *(3.45 m)* **Turning space diameter** (on concrete surface with brake applied) right 233" *(5.92 m)* left 233" *(5.92 m)* (on concrete surface without brake) right 275" *(6.98 m)* left 275" *(6.98 m)* **Power take-off** 540 rpm at 1799 engine rpm.

REPAIRS and ADJUSTMENTS: The fuel injectors were replaced during preliminary PTO tests.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	95.5
75% of Pull at Maximum Power—Ten Hours	96.0
50% of Pull at Maximum Power—Two Hours	94.5
50% of Pull at Reduced Engine Speed—Two Hours	93.5
Bystander in 8th gear	87.0

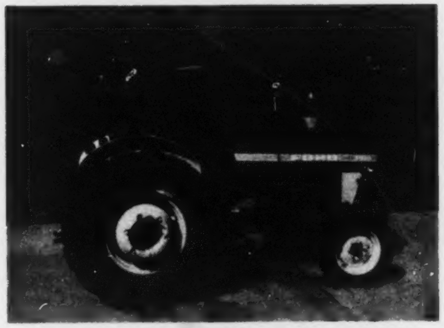
TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9-24; 6; 16 *(110)*	Two 16.9-24; 6; 16 *(110)*
Ballast	—Liquid (each)	505 lb *(229 kg)*	None
	—Cast Iron (each)	330 lb *(150 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 6.50-16; 6; 36 *(250)*	Two 6.50-16; 6; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	45 lb *(20 kg)*	None
Height of Drawbar		17.5 in *(445 mm)*	17.5 in *(445 mm)*
Static Weight with Operator	—Rear	4655 lb *(2111 kg)*	2985 lb *(1354 kg)*
	—Front	1785 lb *(810 kg)*	1695 lb *(769 kg)*
	—Total	6440 lb *(2921 kg)*	4680 lb *(2123 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 141°F *(60.4°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1493.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Ford 3910 (8x2) Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1494—FORD 3910 (8x4) DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—600 rpm)								
42.67 *(31.82)*	2000	2.783 *(10.535)*	0.456 *(0.278)*	15.33 *(3.020)*	192 *(89.2)*	62 *(16.8)*	76 *(24.2)*	28.890 *(97.557)*
Standard Power Take-off Speed (540 rpm)—One Hour								
41.16 *(30.69)*	1799	2.632 *(9.963)*	0.448 *(0.272)*	15.64 *(3.080)*	195 *(90.8)*	62 *(16.6)*	75 *(23.7)*	28.840 *(97.388)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
36.99 *(27.58)*	2058	2.447 *(9.263)*	0.463 *(0.282)*	15.11 *(2.977)*	188 *(86.4)*	62 *(16.9)*	76 *(24.2)*	....
0.00 *(0.00)*	2133	0.827 *(3.131)*	....	....	182 *(83.3)*	62 *(16.9)*	76 *(24.2)*	....
18.93 *(14.12)*	2086	1.556 *(5.890)*	0.575 *(0.350)*	12.16 *(2.397)*	182 *(83.3)*	62 *(16.7)*	74 *(23.6)*	....
43.25 *(32.25)*	2000	2.825 *(10.694)*	0.457 *(0.278)*	15.31 *(3.016)*	192 *(88.6)*	62 *(16.7)*	74 *(23.3)*	....
9.55 *(7.12)*	2110	1.179 *(4.463)*	0.864 *(0.526)*	8.10 *(1.595)*	182 *(83.6)*	62 *(16.7)*	74 *(23.1)*	....
28.02 *(20.89)*	2060	1.989 *(7.529)*	0.497 *(0.302)*	14.09 *(2.775)*	185 *(85.0)*	62 *(16.7)*	74 *(23.3)*	....
Av 22.79 ***Av (16.99)***	**2071**	**1.804** ***(6.829)***	**0.554** ***(0.337)***	**12.63** ***(2.488)***	**185** ***(85.0)***	**62** ***(16.8)***	**75** ***(23.6)***	**28.820** ***(97.321)***

DRAWBAR PERFORMANCE

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 5th Gear											
35.06 *(26.14)*	2248 *(10.00)*	5.85 *(9.41)*	1999	5.47	2.665 *(10.087)*	0.532 *(0.324)*	13.16 *(2.592)*	194 *(90.0)*	60 *(15.3)*	74 *(23.3)*	28.910 *(97.625)*
75% of Pull at Maximum Power—Ten Hours 5th Gear											
27.96 *(20.85)*	1727 *(7.68)*	6.07 *(9.77)*	2049	4.34	2.266 *(8.578)*	0.567 *(0.345)*	12.34 *(2.431)*	185 *(84.7)*	42 *(5.6)*	49 *(9.3)*	29.193 *(98.580)*
50% of Pull at Maximum Power—Two Hours 5th Gear											
19.07 *(14.22)*	1152 *(5.12)*	6.21 *(9.99)*	2060	2.71	1.800 *(6.815)*	0.661 *(0.402)*	10.59 *(2.086)*	190 *(87.8)*	73 *(22.8)*	90 *(32.2)*	28.585 *(96.527)*
50% of Pull at Reduced Engine Speed—Two Hours 6th Gear											
19.12 *(14.26)*	1153 *(5.13)*	6.22 *(10.01)*	1418	2.65	1.450 *(5.490)*	0.531 *(0.323)*	13.18 *(2.597)*	189 *(87.2)*	73 *(22.5)*	87 *(30.6)*	28.550 *(96.409)*
MAXIMUM POWER IN SELECTED GEARS											
28.84 *(21.51)*	4934 *(21.95)*	2.19 *(3.53)*	2021	14.87		2nd Gear		187 *(85.8)*	42 *(5.6)*	50 *(10.0)*	29.190 *(98.570)*
34.89 *(26.02)*	3904 *(17.37)*	3.35 *(5.39)*	2000	9.99		3rd Gear		192 *(88.9)*	53 *(11.7)*	61 *(16.1)*	28.920 *(97.659)*
35.10 *(26.17)*	2592 *(11.53)*	5.08 *(8.17)*	1999	6.23		4th Gear		192 *(88.9)*	53 *(11.7)*	61 *(16.1)*	28.920 *(97.659)*
36.22 *(27.01)*	2323 *(10.33)*	5.85 *(9.41)*	2000	5.49		5th Gear		194 *(89.7)*	57 *(13.9)*	69 *(20.6)*	28.920 *(97.659)*
35.29 *(26.32)*	1527 *(6.79)*	8.67 *(13.95)*	1999	3.70		6th Gear		193 *(89.2)*	57 *(13.9)*	71 *(21.7)*	28.920 *(97.659)*

LUGGING ABILITY IN 5th GEAR

Crankshaft Speed rpm	2000	1802	1595	1401	1201	1001
Pull—lbs *(kN)*	2323 *(10.33)*	2525 *(11.23)*	2635 *(11.72)*	2760 *(12.28)*	2752 *(12.24)*	2708 *(12.05)*
Increase in Pull %	0	9	13	19	18	17
Power—Hp *(kW)*	36.22 *(27.01)*	35.30 *(26.33)*	32.50 *(24.24)*	29.78 *(22.21)*	25.44 *(18.97)*	20.87 *(15.56)*
Speed—Mph *(km/h)*	5.85 *(9.41)*	5.24 *(8.44)*	4.63 *(7.44)*	4.05 *(6.51)*	3.47 *(5.58)*	2.89 *(4.65)*
Slip %	5.49	6.00	6.34	6.67	6.67	6.67

Department of Agricultural Engineering

Dates of Test: September 14-26, 1983

Manufacturer: FORD MOTOR COMPANY, Ford Tractor Operations, 2500 East Maple Road, Troy, Michigan 48084

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8406 **Fuel weight** 6.999 lbs/gal *(0.839 kg/l)* **Oil SAE** 30 **API service classification** SE-SF, CC-CD **To motor** 1.423 gal *(5.387 l)* **Drained from motor** 1.280 gal *(4.844 l)* **Transmission and final drive lubricant** Ford 134 fluid **Total time engine was operated** 48.0 hours.

ENGINE: Make Ford Diesel **Type** three cylinder vertical **Serial No.** *C704785* **Crankshaft** lengthwise **Rated rpm** 2000 **Bore and stroke** 4.4" × 4.2" *(112 mm × 107 mm)* **Compression ratio** 16.3 to 1 **Displacement** 192 cu in *(3147 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *C699561* **Tread width** rear 60" *(1525 mm)* to 80" *(2032 mm)* front 52" *(1320 mm)* to 80" *(2032 mm)* **Wheel base** 77.5" *(1969 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 28.9" *(735 mm)* Vertical distance above roadway 33.2" *(842 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.7 *(2.7)* second 2.5 *(4.0)* third 3.7 *(5.9)* fourth 5.4 *(8.7)* fifth 6.2 *(10.0)* sixth 9.0 *(14.5)* seventh 13.2 *(21.2)* eighth 19.2 *(31.0)* reverse 2.3 *(3.7)*, 3.3 *(5.3)*, 4.8 *(7.7)*, 7.0 *(11.3)* **Clutch** single plate dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 114" *(2.89 m)* left 114" *(2.89 m)* (on concrete surface without brake) right 136" *(3.45 m)* left 136" *(3.45 m)* **Turning space diameter** (on concrete surface with brake applied) right 233" *(5.92 m)* left 233" *(5.92 m)* (on concrete surface without brake) right 275" *(6.98 m)* left 275" *(6.98 m)* **Power take-off** 540 rpm at 1799 engine rpm.

REPAIRS and ADJUSTMENTS: During the PTO tests, the throttle control lever on the injection pump was replaced. The high idle limiting screw was replaced during drawbar tests.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	95.5
75% of Pull at Maximum Power—Ten Hours	94.5
50% of Pull at Maximum Power—Two Hours	93.5
50% of Pull at Reduced Engine Speed—Two Hours	92.5
Bystander in 8th gear	86.0

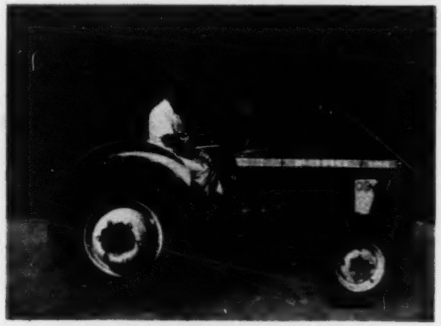
TIRES, BALLAST AND WEIGHT		**With Ballast**	**Without Ballast**
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9-24; 6; 16 *(110)*	Two 16.9-24; 6; 16 *(110)*
Ballast	—Liquid (each)	420 lb *(191 kg)*	None
	—Cast Iron (each)	410 lb *(186 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 6.50-16; 6; 36 *(250)*	Two 6.50-16; 6; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	38 lb *(17 kg)*	None
Height of Drawbar		17 in *(430 mm)*	17 in *(430 mm)*
Static Weight with Operator	—Rear	4645 lb *(2107 kg)*	2985 lb *(1354 kg)*
	—Front	1790 lb *(812 kg)*	1715 lb *(778 kg)*
	—Total	6435 lb *(2919 kg)*	4700 lb *(2132 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 142°F *(61.2°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1494.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Ford 3910 (8x4) Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1495 — KUBOTA M4050DT DIESEL
ALSO KUBOTA M4050 DIESEL
8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—640 rpm)								
45.74 (34.11)	2602	3.156 (11.947)	0.483 (0.294)	14.49 (2.855)	194 (90.3)	68 (20.2)	76 (24.2)	29.017 (97.985)
Standard Power take-off Speed (540 rpm)—One Hour								
42.10 (31.39)	2196	2.796 (10.584)	0.465 (0.283)	15.06 (2.966)	197 (91.9)	70 (21.1)	78 (25.8)	28.985 (97.878)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
39.44 (29.41)	2636	2.749 (10.406)	0.488 (0.297)	14.35 (2.826)	193 (89.4)	70 (21.1)	80 (26.7)	....
0.00 (0.00)	2771	1.016 (3.846)	....	....	180 (82.5)	70 (21.1)	80 (26.9)	....
20.19 (15.06)	2701	1.883 (7.128)	0.652 (0.397)	10.73 (2.113)	186 (85.3)	70 (21.1)	81 (27.2)	....
45.17 (33.68)	2600	3.143 (11.898)	0.487 (0.296)	14.37 (2.831)	206 (96.9)	70 (20.8)	80 (26.9)	....
10.25 (7.64)	2740	1.415 (5.356)	0.966 (0.588)	7.25 (1.426)	178 (81.1)	70 (21.1)	81 (27.2)	....
29.89 (22.29)	2666	2.320 (8.782)	0.543 (0.330)	12.88 (2.538)	188 (86.4)	70 (21.1)	80 (26.9)	....
Av 24.16 *Av* ([illegible])	**2686**	**2.088** (7.904)	**0.605** (0.368)	**11.57** (2.280)	**189** (86.9)	**70** (21.1)	**81** (27.0)	**28.980** (97.611)

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (H-2) Gear											
36.02 (26.86)	2261 (10.06)	5.97 (9.62)	2600	7.32	3.087 (11.687)	0.600 (0.365)	11.67 (2.298)	193 (89.4)	65 (18.3)	78 (25.3)	28.875 (97.507)
75% of Pull at Maximum Power—Ten Hours 6th (H-2) Gear											
29.29 (21.84)	1767 (7.86)	6.22 (10.00)	2642	5.11	2.543 (9.626)	0.607 (0.369)	11.52 (2.269)	189 (87.3)	57 (13.7)	63 (16.9)	28.728 (97.010)
50% of Pull at Maximum Power—Two Hours 6th (H-2) Gear											
20.26 (15.10)	1178 (5.24)	6.45 (10.38)	2690	3.31	2.051 (7.765)	0.708 (0.431)	9.88 (1.945)	187 (85.8)	54 (11.9)	56 (13.1)	28.815 (97.304)
50% of Pull at Reduced Engine Speed—Two Hours 7th (H-3) Gear											
20.24 (15.09)	1178 (5.24)	6.44 (10.37)	1595	3.25	1.651 (6.250)	0.571 (0.347)	12.26 (2.415)	186 (85.3)	57 (13.9)	64 (17.5)	28.790 (97.220)
MAXIMUM POWER IN SELECTED GEARS											
28.58 (21.31)	4259 (18.94)	2.52 (4.05)	2642	14.70	3rd (L-3) Gear			191 (88.3)	56 (13.3)	59 (15.0)	28.810 (97.287)
36.61 (27.30)	3984 (17.72)	3.45 (5.55)	2599	13.08	4th (L-4) Gear			202 (94.4)	56 (13.3)	60 (15.6)	28.810 (97.287)
37.31 (27.83)	2969 (13.21)	4.71 (7.58)	2600	9.58	5th (H-1) Gear			191 (88.1)	62 (16.7)	73 (22.8)	28.860 (97.456)
37.61 (28.05)	2356 (10.48)	5.99 (9.64)	2598	7.05	6th (H-2) Gear			189 (87.2)	61 (16.1)	72 (22.2)	28.870 (97.490)

LUGGING ABILITY IN 6th (H-2) GEAR

Crankshaft Speed rpm	2598	2342	2080	1819	1556	1299	1031
Pull—lbs (kN)	2356 (10.48)	2428 (10.80)	2749 (12.23)	2901 (12.90)	2972 (13.22)	2993 (13.31)	2832 (12.60)
Increase in Pull %	0	3	17	23	26	27	20
Power—Hp (kW)	37.61 (28.05)	34.81 (25.96)	34.58 (25.78)	31.68 (23.63)	27.73 (20.68)	23.29 (17.36)	17.59 (13.12)
Speed—Mph (km/h)	5.99 (9.64)	5.38 (8.65)	4.72 (7.59)	4.10 (6.59)	3.50 (5.63)	2.92 (4.70)	2.33 (3.75)
Slip %	7.05	7.43	8.60	9.32	9.32	9.43	9.01

Department of Agricultural Engineering

Dates of Test: September 26 to October 7, 1983

Manufacturer: KUBOTA LTD, 2-47 Shikitsu higashi, 1-chome, Naniwa-ku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8403 **Fuel weight** 6.996 lbs/gal *(0.838 kg/l)* **Oil SAE** 20-20W **API service classification** SE-SF, CC-CD **To motor** 2.609 gal *(9.875 l)* **Drained from motor** 2.231 gal *(8.445 l)* **Transmission and hydraulic lubricant** Shell Donax TD or equivalent **Front axle lubricant** SAE 80/90 gear oil **Total time engine was operated** 46.5 hours.

ENGINE: Make Kubota Diesel **Type** six cylinder vertical **Serial No.** S2600-AL-20262 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 3.23" × 3.23" *(82 mm × 82 mm)* **Compression ratio** 21 to 1 **Displacement** 158.5 cu in *(2598 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Fuel filter** one paper cartridge **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** M4050DT-50355 **Tread width** rear 59.1" *(1500 mm)* to 74.8" *(1900 mm)* front 58.3" *(1480 mm)* **Wheel base** 79.5" *(2020 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal di[illegible] forward from centerline of rear whee[illegible] *mm)* Vertical distance above road [illegible] *[illegible]90 mm)* Horizontal distance from cente[illegible] ar wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.4 *(2.2)* second 1.7 *(2.8)* third 2.9 *(4.7)* fourth 4.0 *(6.4)* fifth 5.2 *(8.4)* sixth 6.5 *(10.4)* seventh 10.9 *(17.5)* eighth 14.9 *(23.9)* reverse 1.9 *(3.0)*, 7.0 *(11.2)* **Clutch** single plate dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together and hand lever **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 129" *(3.3 m)* left 129" *(3.3 m)* (on concrete surface without brake) right 165" *(4.2 m)* left 165" *(4.2 m)* **Turning space diameter** (on concrete surface with brake applied) right 280" *(7.1 m)* left 280" *(7.1 m)* (on concrete surface without brake) right 343" *(8.7 m)* left 343" *(8.7 m)* **Power take-off** 540 rpm at 2196 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	93.0	92.5
75% of Pull at Maximum Power—Ten Hours		93.0
50% of Pull at Maximum Power—Two Hours		93.0
50% of Pull at Reduced Engine Speed—Two Hours		88.5
Bystander in 8th (H-4) gear		80.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (H-2) Gear											
36.20 (26.99)	2195 (9.76)	6.19 (9.95)	2600	4.47	3.016 (11.417)	0.583 (0.355)	12.00 (2.364)	199 (92.5)	68 (20.0)	83 (28.1)	28.820 (97.321)
MAXIMUM POWER IN SELECTED GEARS											
24.45 (18.23)	6070 (27.00)	1.51 (2.43)	2667	14.93	2nd (L-2) Gear			192 (88.9)	55 (12.8)	58 (14.4)	28.820 (97.321)
37.74 (28.14)	2871 (12.77)	4.93 (7.93)	2600	5.74	5th (H-1) Gear			190 (87.5)	59 (15.0)	67 (19.4)	28.860 (97.456)
38.02 (28.35)	2310 (10.27)	6.17 (9.94)	2597	4.61	6th (H-2) Gear			190 (87.5)	61 (16.1)	72 (22.2)	28.870 (97.490)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 13.6-28; 6; 22 *(150)*	Two 13.6-28; 6; 22 *(150)*
Ballast	—Liquid (each)	260 lb *(118 kg)*	None
	—Cast Iron (each)	400 lb *(181 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 8.3-20; 6; 34 *(235)*	Two 8.3-20; 6; 34 *(235)*
Ballast	—Liquid (each)	108 lb *(49 kg)*	None
	—Cast Iron (each)	370 lb *(168 kg)*	None
Height of Drawbar		14.5 in *(370 mm)*	14.5 in *(370 mm)*
Static Weight with Operator	—Rear	4280 lb *(1942 kg)*	2960 lb *(1343 kg)*
	—Front	2935 lb *(1331 kg)*	1980 lb *(898 kg)*
	—Total	7215 lb *(3273 kg)*	4940 lb *(2241 kg)*

Kubota M4050DT Diesel

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 136°F *(57.9°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1495.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
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Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irwin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1496 — KUBOTA M4950DT DIESEL
ALSO KUBOTA M4950 DIESEL
12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F *(°C)* Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—640 rpm)								
49.57 *(36.96)*	2600	3.583 *(13.563)*	0.506 *(0.308)*	13.83 *(2.725)*	189 *(87.1)*	68 *(19.7)*	75 *(24.0)*	28.820 *(97.321)*
Standard Power take-off Speed (540 rpm)—One Hour								
45.47 *(33.91)*	2194	3.094 *(11.712)*	0.476 *(0.290)*	14.70 *(2.895)*	191 *(88.3)*	68 *(19.9)*	75 *(24.1)*	28.810 *(97.287)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
42.76 *(31.89)*	2639	3.104 *(11.750)*	0.508 *(0.309)*	13.78 *(2.714)*	182 *(83.6)*	68 *(20.0)*	76 *(24.4)*	....
0.00 *(0.00)*	2759	1.157 *(4.380)*	....	....	180 *(81.9)*	69 *(20.6)*	76 *(24.7)*	....
21.90 *(16.33)*	2701	2.049 *(7.756)*	0.655 *(0.398)*	10.69 *(2.105)*	181 *(82.8)*	67 *(19.4)*	74 *(23.3)*	....
45.59 *(36.98)*	2600	3.605 *(13.646)*	0.509 *(0.310)*	13.75 *(2.710)*	188 *(86.7)*	68 *(19.7)*	74 *(23.6)*	....
11.05 *(8.24)*	2726	1.599 *(6.053)*	1.013 *(0.616)*	6.91 *(1.361)*	180 *(82.2)*	68 *(20.3)*	76 *(24.4)*	....
32.55 *(24.27)*	2678	2.564 *(9.706)*	0.551 *(0.335)*	12.70 *(2.501)*	183 *(83.9)*	67 *(19.4)*	74 *(23.3)*	....
Av 26.31 ***Av (19.62)***	**2684**	**2.346** ***(8.881)***	**0.624** ***(0.380)***	**11.21** ***(2.209)***	**182** ***(83.3)***	**68** ***(19.9)***	**75** ***(24.0)***	**28.777** ***(97.174)***

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F *(°C)* Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 8th (C-2) Gear											
40.16 *(29.95)*	3207 *(14.27)*	4.70 *(7.56)*	2598	7.69	3.495 *(13.229)*	0.609 *(0.370)*	11.49 *(2.264)*	189 *(87.2)*	67 *(19.2)*	78 *(25.6)*	29.030 *(98.030)*
75% of Pull at Maximum Power—Ten Hours 8th (C-2) Gear											
32.13 *(23.96)*	2456 *(10.92)*	4.91 *(7.90)*	2655	5.63	2.883 *(10.914)*	0.628 *(0.382)*	11.15 *(2.196)*	187 *(85.8)*	66 *(19.1)*	73 *(22.8)*	29.024 *(98.010)*
50% of Pull at Maximum Power—Two Hours 8th (C-2) Gear											
22.16 *(16.52)*	1659 *(7.38)*	5.01 *(8.06)*	2694	5.11	2.394 *(9.061)*	0.756 *(0.460)*	9.26 *(1.824)*	181 *(82.8)*	47 *(8.3)*	52 *(10.8)*	29.163 *(98.486)*
50% of Pull at Reduced Engine Speed—Two Hours 10th (D-1) Gear											
22.20 *(16.55)*	1655 *(7.38)*	5.02 *(8.08)*	1560	4.79	1.736 *(6.572)*	0.547 *(0.333)*	12.79 *(2.519)*	185 *(84.7)*	50 *(9.7)*	59 *(15.0)*	29.140 *(98.401)*
MAXIMUM POWER IN SELECTED GEARS											
31.60 *(23.56)*	5292 *(23.54)*	2.24 *(3.60)*	2653	14.80	5th (B-2) Gear			188 *(86.7)*	60 *(15.6)*	68 *(20.0)*	28.740 *(97.051)*
39.55 *(29.49)*	4822 *(21.45)*	3.08 *(4.95)*	2597	12.39	6th (B-3) Gear			189 *(87.2)*	58 *(14.4)*	64 *(17.8)*	28.740 *(97.051)*
41.22 *(30.73)*	4318 *(19.21)*	3.58 *(5.76)*	2600	10.47	7th (C-1) Gear			190 *(87.5)*	58 *(14.4)*	64 *(17.8)*	28.740 *(97.051)*
41.43 *(30.89)*	3316 *(14.75)*	4.68 *(7.54)*	2600	8.02	8th (C-2) Gear			189 *(87.2)*	56 *(13.3)*	62 *(16.7)*	28.720 *(96.983)*
40.15 *(29.94)*	2305 *(10.25)*	6.53 *(10.51)*	2596	6.01	9th (C-3) Gear			189 *(86.9)*	59 *(15.0)*	65 *(18.9)*	28.740 *(97.051)*
39.66 *(29.57)*	1780 *(7.92)*	8.35 *(13.43)*	2598	4.85	10th (D-1) Gear			190 *(87.8)*	59 *(15.0)*	67 *(19.4)*	28.740 *(97.051)*

Department of Agricultural Engineering

Dates of Test: September 23 to October 18, 1983

Manufacturer: KUBOTA LTD, 2-47 Shikitsu higashi, 1-chome, Naniwa-ku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8404 **Fuel weight** 6.998 lbs/gal *(0.839 kg/l)* **Oil SAE** 20-20W **API service classification** SE-SF, CC-CD **To motor** 3.198 gal *(12.108 l)* **Drained from motor** 2.602 gal *(9.851 l)* **Transmission and hydraulic lubricant** Shell Donax TD or equivalent **Front axle lubricant** SAE 80/90 gear oil **Total time engine was operated** 64.0 hours.

ENGINE: Make Kubota Diesel **Type** six cylinder vertical **Serial No.** S2800-A-19880 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 3.35" × 3.23" *(85 mm × 82 mm)* **Compression ratio** 21 to 1 **Displacement** 170 cu in *(2791 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** M4950DTF-U50143 **Tread width** rear 55.9" *(1420 mm)* to 79.5" *(2020 mm)* front 55.9" *(1420 mm)* to 63.8" *(1620 mm)* **Wheel base** 82.3" *(2090 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 35.8" *(910 mm)* Vertical distance above roadway 35.5" *(902 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.9 *(1.5)* second 1.2 *(1.9)* third 1.6 *(2.6)* fourth 2.1 *(3.3)* fifth 2.6 *(4.3)* sixth 3.6 *(5.8)* seventh 4.1 *(6.6)* eighth 5.2 *(8.4)* ninth 7.1 *(11.5)* tenth 9.0 *(14.5)* eleventh 11.5 *(18.5)* twelfth 15.7 *(25.3)* reverse 0.7 *(1.1)*, 1.5 *(2.4)*, 3.0 *(4.8)*, 6.6 *(10.6)* **Clutch** single plate dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 130" *(3.3 m)* left 130" *(3.3 m)* (on concrete surface without brake) right 158" *(4.0 m)* left 158" *(4.0 m)* **Turning space diameter** (on concrete surface with brake applied) right 276" *(7.0 m)* left 276" *(7.0 m)* (on concrete surface without brake) right 332" *(8.4 m)* left 332" *(8.4 m)* **Power take-off** 540 rpm at 2194 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 8th (C-2) GEAR

Crankshaft Speed rpm	2600	2344	2079	1818	1561	1296	1031
Pull—lbs *(kN)*	3316 *(14.75)*	3467 *(15.42)*	3824 *(17.01)*	4040 *(17.97)*	4170 *(18.55)*	4226 *(18.80)*	4017 *(17.87)*
Increase in Pull %	0	5	15	22	26	27	21
Power—Hp *(kW)*	41.43 *(30.89)*	38.89 *(29.00)*	37.70 *(28.11)*	34.60 *(25.80)*	30.53 *(22.76)*	25.63 *(19.11)*	19.50 *(14.54)*
Speed—Mph *(km/h)*	4.68 *(7.54)*	4.21 *(6.77)*	3.70 *(5.95)*	3.21 *(5.17)*	2.75 *(4.42)*	2.27 *(3.66)*	1.82 *(2.93)*
Slip %	8.02	8.34	9.20	9.84	10.26	10.47	9.84

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	93.5	93.5
75% of Pull at Maximum Power—Ten Hours		93.5
50% of Pull at Maximum Power—Two Hours		94.5
50% of Pull at Reduced Engine Speed—Two Hours		87.5
Bystander in 12th (D-3) gear		81.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F *(°C)* Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg *(kPa)*
Maximum Available Power—Two Hours 8th (C-2) Gear											
40.25 *(30.01)*	3085 *(13.72)*	4.89 *(7.87)*	2599	5.95	3.445 *(13.040)*	0.599 *(0.364)*	11.68 *(2.301)*	191 *(88.1)*	67 *(19.2)*	81 *(27.2)*	28.990 *(97.895)*
MAXIMUM POWER IN SELECTED GEARS											
32.20 *(24.01)*	6750 *(30.03)*	1.79 *(2.88)*	2647	14.98	4th (B-1) Gear			187 *(86.1)*	59 *(15.0)*	65 *(18.3)*	29.060 *(98.131)*
40.75 *(30.39)*	3126 *(13.90)*	4.89 *(7.87)*	2599	6.01	8th (C-2) Gear			189 *(86.9)*	64 *(17.8)*	72 *(22.2)*	29.020 *(97.996)*

TIRES, BALLAST AND WEIGHT		**With Ballast**	**Without Ballast**
Rear Tires	—No., size, ply & psi *(kPa)*	Two 14.9-28; 6; 16 *(110)*	Two 14.9-28; 6; 16 *(110)*
Ballast	—Liquid (each)	520 lb *(236 kg)*	None
	—Cast Iron (each)	500 lb *(227 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 8.3-24; 6; 26 *(180)*	Two 8.3-24; 6; 26 *(180)*
Ballast	—Liquid (each)	110 lb *(50 kg)*	None
	—Cast Iron (each)	68 lb *(31 kg)*	None
Height of Drawbar		13.5 in *(345 mm)*	13.5 in *(345 mm)*
Static Weight with Operator	—Rear	5370 lb *(2436 kg)*	3330 lb *(1511 kg)*
	—Front	2825 lb *(1281 kg)*	2470 lb *(1120 kg)*
	—Total	8195 lb *(3717 kg)*	5800 lb *(2631 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 131°F *(54.9°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1496.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Kubota M4950DT Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irwin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1497 — KUBOTA M5950DT DIESEL ALSO KUBOTA M5950 DIESEL
12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—643 rpm)								
58.00 (43.25)	2400	3.637 (13.768)	0.439 (0.267)	15.95 (3.141)	183 (83.7)	66 (19.2)	75 (24.0)	28.740 (97.051)
Standard Power take-off Speed (540 rpm)—One Hour								
52.81 (39.38)	2017	3.092 (11.704)	0.410 (0.249)	17.08 (3.365)	181 (82.7)	66 (19.1)	75 (23.9)	28.730 (97.017)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
50.33 (37.53)	2451	3.074 (11.636)	0.427 (0.260)	16.37 (3.225)	178 (80.8)	66 (18.9)	75 (23.9)	....
0.00 (0.00)	2539	1.162 (4.399)	....	....	166 (74.7)	66 (18.9)	75 (23.9)	....
25.65 (19.13)	2497	1.938 (7.336)	0.529 (0.322)	13.23 (2.608)	170 (76.7)	66 (18.9)	75 (23.9)	....
58.00 (43.25)	2400	3.648 (13.809)	0.440 (0.268)	15.90 (3.132)	183 (83.9)	66 (18.9)	75 (23.9)	....
12.95 (9.66)	2522	1.492 (5.648)	0.806 (0.490)	8.68 (1.710)	168 (75.3)	66 (18.9)	75 (23.9)	....
38.09 (28.40)	2472	2.456 (9.297)	0.451 (0.275)	15.51 (3.055)	176 (79.7)	66 (18.9)	75 (23.9)	....
Av 30.84 Av (23.00)	2480	2.295 (8.688)	0.521 (0.317)	13.44 (2.647)	173 (78.5)	66 (18.9)	75 (23.9)	28.750 (97.084)

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 8th (C-2) Gear											
48.15 (35.91)	3548 (15.78)	5.09 (8.19)	2400	7.23	3.530 (13.361)	0.513 (0.312)	13.64 (2.687)	182 (83.3)	59 (14.7)	71 (21.4)	28.990 (97.895)
75% of Pull at Maximum Power—Ten Hours 8th (C-2) Gear											
38.66 (28.83)	2721 (12.10)	5.33 (8.57)	2452	4.93	2.857 (10.813)	0.517 (0.315)	13.53 (2.666)	180 (82.1)	59 (14.8)	63 (17.4)	28.885 (97.540)
50% of Pull at Maximum Power—Two Hours 8th (C-2) Gear											
26.36 (19.66)	1614 (8.07)	5.45 (8.77)	2474	3.66	2.229 (8.438)	0.592 (0.360)	11.83 (2.330)	174 (78.9)	55 (12.8)	66 (18.9)	29.050 (98.097)
50% of Pull at Reduced Engine Speed--Two Hours 10th (D-1) Gear											
26.37 (19.66)	1815 (8.07)	5.45 (8.77)	1431	3.50	1.793 (6.789)	0.476 (0.290)	14.70 (2.896)	179 (81.7)	59 (14.7)	74 (23.1)	28.985 (97.878)
MAXIMUM POWER IN SELECTED GEARS											
36.99 (27.59)	5749 (25.57)	2.41 (3.88)	2453	14.82	5th (B-2) Gear			173 (78.3)	45 (7.2)	49 (9.4)	29.260 (98.807)
47.99 (35.79)	5432 (24.16)	3.31 (5.33)	2401	12.50	6th (B-3) Gear			180 (82.2)	46 (7.8)	49 (9.4)	29.270 (98.840)
48.54 (36.20)	4726 (21.02)	3.85 (6.20)	2398	10.38	7th (C-1) Gear			181 (82.8)	55 (12.8)	63 (17.2)	28.970 (97.827)
49.29 (36.76)	3628 (16.14)	5.09 (8.20)	2400	7.11	8th (C-2) Gear			181 (82.8)	53 (11.7)	60 (15.6)	28.960 (97.794)
48.81 (36.40)	2569 (11.43)	7.12 (11.47)	2401	4.84	9th (C-3) Gear			181 (82.8)	57 (13.9)	66 (18.9)	28.970 (97.827)
47.80 (35.64)	1970 (8.76)	9.10 (14.65)	2397	3.72	10th (D-1) Gear			182 (83.3)	58 (14.4)	68 (20.0)	28.980 (97.861)

Department of Agricultural Engineering

Dates of Test: September 26 to October 11, 1983

Manufacturer: KUBOTA LTD, 2-47 Shikitsu higashi, 1-chome, Naniwa-ku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8404 **Fuel weight** 6.998 lbs/gal *(0.839 kg/l)* **Oil SAE** 20-20W **API service classification** SE-SF, CC-CD **To motor** 1.990 gal *(7.535 l)* **Drained from motor** 1.792 gal *(6.785 l)* **Transmission and hydraulic lubricant** Shell Donax TD or equivalent **Front axle lubricant** SAE 80/90 gear oil **Total time engine was operated** 45.0 hours.

ENGINE: Make Kubota Diesel **Type** three cylinder vertical **Serial No.** D3200-A-19386 **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 4.29" × 4.53" *(109 mm × 115 mm)* **Compression ratio** 17 to 1 **Displacement** 196 cu in *(3219 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Fuel filter** one paper element and water separator **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** M5950DTF-U50039 **Tread width** rear 55.9" *(1420 mm)* to 79.5" *(2020 mm)* front 55.9" *(1420 mm)* to 63.8" *(1620 mm)* **Wheel base** 83.3" *(2115 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 36.3" *(921 mm)* Vertical distance above roadway 36.8" *(935 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.0 *(1.6)* second 1.3 *(2.1)* third 1.8 *(2.9)* fourth 2.3 *(3.6)* fifth 2.9 *(4.6)* sixth 3.9 *(6.3)* seventh 4.5 *(7.2)* eighth 5.7 *(9.2)* ninth 7.8 *(12.5)* tenth 9.8 *(15.8)* eleventh 12.5 *(20.1)* twelfth 17.1 *(27.5)* reverse 0.8 *(1.2)*, 1.6 *(2.6)*, 3.3 *(5.2)*, 7.1 *(11.5)* **Clutch** single plate dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 130" *(3.3 m)* left 130" *(3.3 m)* (on concrete surface without brake) right 158" *(4.0 m)* left 158" *(4.0 m)* **Turning space diameter** (on concrete surface with brake applied) right 276" *(7.0 m)* left 276" *(7.0 m)* (on concrete surface without brake) right 331" *(8.4 m)* left 331" *(8.4 m)* **Power take-off** 540 rpm at 2017 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 8th (C-2) GEAR

Crankshaft Speed rpm	2400	2163	1914	1684	1436	1198
Pull—lbs (kN)	3628 (16.14)	3808 (16.94)	4090 (18.19)	4330 (19.26)	4512 (20.07)	4509 (20.06)
Increase in Pull %	0	5	13	19	24	24
Power—Hp (kW)	49.29 (36.76)	46.39 (34.60)	43.76 (32.63)	40.43 (30.15)	35.71 (26.63)	29.78 (22.21)
Speed—Mph (km/h)	5.09 (8.20)	4.57 (7.35)	4.01 (6.46)	3.50 (5.63)	2.97 (4.78)	2.48 (3.99)
Slip %	7.11	7.63	8.21	9.11	9.44	9.56

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	97.5	97.5
75% of Pull at Maximum Power—Ten Hours		97.0
50% of Pull at Maximum Power—Two Hours		96.5
50% of Pull at Reduced Engine Speed—Two Hours		91.0
Bystander in 12th (D-3) gear		87.0

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 8th (C-2) Gear											
47.51 (35.43)	3340 (14.86)	5.33 (8.58)	2400	4.68	3.494 (13.226)	0.515 (0.313)	13.60 (2.679)	183 (83.6)	59 (14.7)	74 (23.3)	28.975 (97.844)
MAXIMUM POWER IN SELECTED GEARS											
42.66 (31.81)	8350 (37.14)	1.92 (3.08)	2434	14.90	4th (B-1) Gear			175 (79.4)	45 (7.2)	48 (8.9)	29.240 (98.739)
49.13 (36.63)	3457 (15.38)	5.33 (8.58)	2400	4.65	8th (C-2) Gear			181 (82.8)	52 (11.1)	56 (13.3)	28.950 (97.760)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9-28; 6; 16 *(110)*	Two 16.9-28; 6; 16 *(110)*
Ballast	—Liquid (each)	432 lb *(196 kg)*	None
	—Cast Iron (each)	360 lb *(163 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5-24; 6; 30 *(205)*	Two 9.5-24; 6; 30 *(205)*
Ballast	—Liquid (each)	173 lb *(79 kg)*	None
	—Cast Iron (each)	585 lb *(265 kg)*	None
Height of Drawbar		15.5 in *(395 mm)*	15.5 in *(395 mm)*
Static Weight with Operator	—Rear	5110 lb *(2318 kg)*	3525 lb *(1599 kg)*
	—Front	4110 lb *(1864 kg)*	2595 lb *(1177 kg)*
	—Total	9220 lb *(4182 kg)*	6120 lb *(2776 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 145°F *(62.8°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. During inspection it was found that the exhaust valves of cylinders 1 and 2 were pitted.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1497.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Kubota M5950DT Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irwin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1498 — KUBOTA M6950DT DIESEL
ALSO KUBOTA M6950 DIESEL
12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—637 rpm)								
66.44 (49.54)	2400	4.123 (15.607)	0.434 (0.264)	16.11 (3.174)	186 (85.4)	69 (20.6)	75 (23.8)	28.980 (97.861)
Standard Power take-off Speed (540 rpm)—One Hour								
63.96 (47.69)	2036	3.767 (14.260)	0.412 (0.251)	16.98 (3.344)	192 (88.7)	69 (20.4)	75 (23.7)	28.980 (97.861)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
57.37 (42.78)	2436	3.558 (13.468)	0.434 (0.264)	16.12 (3.176)	180 (82.2)	68 (20.3)	74 (23.6)	....
0.00 (0.00)	2537	1.269 (4.804)	....	....	170 (76.7)	69 (20.6)	75 (23.9)	....
29.30 (21.85)	2492	2.341 (8.862)	0.559 (0.340)	12.52 (2.466)	178 (80.8)	70 (20.8)	76 (24.4)	....
66.19 (49.36)	2400	4.081 (15.448)	0.431 (0.263)	16.22 (3.195)	185 (85.0)	69 (20.6)	76 (24.2)	....
14.79 (11.03)	2514	1.783 (6.749)	0.844 (0.513)	8.29 (1.634)	175 (79.4)	70 (20.8)	75 (23.9)	....
43.56 (32.48)	2468	2.902 (10.985)	0.466 (0.284)	15.01 (2.957)	178 (81.1)	69 (20.6)	75 (23.9)	....
Av 35.20 **Av (26.25)**	**2474**	**2.656** **(10.054)**	**0.528** **(0.321)**	**13.26** **(2.611)**	**178** **(80.9)**	**69** **(20.6)**	**75** **(24.0)**	**28.980** **(97.861)**

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 8th (C-2) Gear											
55.50 (41.39)	4154 (18.48)	5.01 (8.06)	2400	8.05	4.044 (15.308)	0.510 (0.310)	13.72 (2.704)	185 (84.7)	50 (9.7)	56 (13.1)	29.270 (98.840)
75% of Pull at Maximum Power—Ten Hours 8th (C-2) Gear											
44.55 (33.22)	3179 (14.14)	5.25 (8.46)	2450	5.56	3.355 (12.701)	0.527 (0.321)	13.28 (2.615)	183 (83.8)	59 (15.1)	63 (17.4)	28.862 (97.463)
50% of Pull at Maximum Power—Two Hours 8th (C-2) Gear											
30.67 (22.87)	2121 (9.43)	5.42 (8.73)	2480	3.68	2.708 (10.251)	0.618 (0.376)	11.33 (2.232)	178 (81.1)	50 (9.7)	55 (12.8)	28.815 (97.304)
50% of Pull at Reduced Engine Speed—Two Hours 10th (D-1) Gear											
30.68 (22.88)	2121 (9.43)	5.43 (8.73)	1436	3.61	2.101 (7.952)	0.479 (0.291)	14.61 (2.878)	182 (83.3)	49 (9.2)	56 (13.3)	28.850 (97.422)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
41.49 (30.94)	6517 (28.99)	2.39 (3.84)	2445	14.81	5th (B-2) Gear	183 (83.9)	53 (11.7)	57 (13.9)	28.780 (97.186)
51.97 (38.76)	5917 (26.32)	3.29 (5.30)	2398	12.27	6th (B-3) Gear	184 (84.4)	51 (10.6)	56 (13.3)	28.780 (97.186)
54.95 (40.97)	5435 (24.17)	3.79 (6.10)	2398	11.38	7th (C-1) Gear	184 (84.4)	49 (9.4)	54 (12.2)	29.320 (99.009)
56.74 (42.31)	4239 (18.86)	5.02 (8.08)	2399	7.90	8th (C-2) Gear	184 (84.4)	48 (8.9)	53 (11.7)	29.330 (99.043)
55.73 (41.56)	2977 (13.24)	7.02 (11.30)	2398	5.55	9th (C-3) Gear	184 (84.4)	49 (9.4)	55 (12.8)	29.300 (98.942)
55.41 (41.32)	2309 (10.27)	9.00 (14.48)	2399	4.27	10th (D-1) Gear	184 (84.2)	49 (9.4)	55 (12.8)	29.290 (98.908)

Department of Agricultural Engineering

Dates of Test: September 27 to October 13, 1983

Manufacturer: KUBOTA LTD, 2-47 Shikitsu higashi, 1-chome, Naniwa-ku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8404 **Fuel weight** 6.998 lbs/gal *(0.839 kg/l)* **Oil SAE** 20-20W **API service classification** SE-SF, CC-CD **To motor** 2.654 gal *(10.048 l)* **Drained from motor** 2.481 gal *(9.391 l)* **Transmission and hydraulic lubricant** Shell Donax TD or equivalent **Front axle lubricant** SAE 80/90 gear oil **Total time engine was operated** 40.0 hours.

ENGINE: Make Kubota Diesel **Type** four cylinder vertical **Serial No.** V4000-2A-20060 **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 4.13" × 4.53" *(105 mm × 115 mm)* **Compression ratio** 17 to 1 **Displacement** 243 cu in *(3983 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Fuel filter** one paper element and water separator **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** M6950DTF-U50093 **Tread width** rear 59.8" *(1520 mm)* to 79.5" *(2020 mm)* front 60.6" *(1540 mm)* to 68.5" *(1740 mm)* **Wheel base** 89.0" *(2260 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 38.0" *(965 mm)* Vertical distance above roadway 39.4" *(1002 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.0 *(1.6)* second 1.3 *(2.1)* third 1.8 *(2.8)* fourth 2.2 *(3.6)* fifth 2.8 *(4.5)* sixth 3.8 *(6.2)* seventh 4.4 *(7.0)* eighth 5.6 *(9.0)* ninth 7.6 *(12.2)* tenth 9.6 *(15.5)* eleventh 12.2 *(19.7)* twelfth 16.7 *(26.9)* reverse 0.7 *(1.2)*, 1.6 *(2.6)*, 3.2 *(5.1)*, 7.0 *(11.2)* **Clutch** single plate dry disc operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 145" *(3.7 m)* left 145" *(3.7 m)* (on concrete surface without brake) right 185" *(4.7 m)* left 185" *(4.7 m)* **Turning space diameter** (on concrete surface with brake applied) right 307" *(7.8 m)* left 307" *(7.8 m)* (on concrete surface without brake) right 386" *(9.8 m)* left 386" *(9.8 m)* **Power take-off** 540 rpm at 2036 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 8th (C-2) GEAR

Crankshaft Speed rpm	2399	2166	1913	1681	1432	1196	955
Pull—lbs (kN)	4239 (18.86)	4700 (20.91)	4995 (22.22)	5143 (22.88)	5216 (23.20)	5232 (23.27)	5054 (22.48)
Increase in Pull %	0	11	18	21	23	23	19
Power—Hp (kW)	56.74 (42.31)	56.15 (41.87)	52.22 (38.94)	46.95 (35.01)	40.49 (30.19)	33.88 (25.26)	26.27 (19.59)
Speed—Mph (km/h)	5.02 (8.08)	4.48 (7.21)	3.92 (6.31)	3.42 (5.51)	2.91 (4.68)	2.43 (3.91)	1.95 (3.14)
Slip %	7.90	8.97	9.79	10.25	10.48	10.71	10.14

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	96.5	96.5
75% of Pull at Maximum Power—Ten Hours		96.0
50% of Pull at Maximum Power—Two Hours		94.0
50% of Pull at Reduced Engine Speed—Two Hours		88.5
Bystander in 12th (D-3) gear		87.0

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 8th (C-2) Gear											
55.16 (41.14)	3966 (17.64)	5.22 (8.40)	2400	5.76	4.044 (15.308)	0.513 (0.312)	13.64 (2.687)	184 (84.4)	50 (10.0)	56 (13.3)	29.260 (98.807)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
42.80 (31.92)	8465 (37.65)	1.90 (3.05)	2440	14.96	4th (B-1) Gear	183 (83.9)	55 (12.8)	57 (13.9)	28.770 (97.152)
56.41 (42.06)	4063 (18.07)	5.21 (8.38)	2398	5.89	8th (C-2) Gear	184 (84.4)	48 (8.9)	53 (11.7)	29.310 (98.975)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-28; 6; 16 *(110)*	Two 18.4-28; 6; 16 *(110)*
Ballast	—Liquid (each)	598 lb *(271 kg)*	None
	—Cast Iron (each)	392 lb *(178 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.2-24; 6; 26 *(180)*	Two 11.2-24; 6; 26 *(180)*
Ballast	—Liquid (each)	195 lb *(89 kg)*	None
	—Cast Iron (each)	80 lb *(36 kg)*	None
Height of Drawbar		16 in *(405 mm)*	16 in *(405 mm)*
Static Weight with Operator	—Rear	6070 lb *(2753 kg)*	4090 lb *(1855 kg)*
	—Front	3505 lb *(1590 kg)*	2955 lb *(1340 kg)*
	—Total	9575 lb *(4343 kg)*	7045 lb *(3195 kg)*

Kubota M6950DT Diesel

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 145°F *(62.8°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1498.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irwin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1499 — KUBOTA M7950DT DIESEL
ALSO KUBOTA M7950 DIESEL
12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—637 rpm)								
75.44 (56.26)	2400	4.669 (17.674)	0.433 (0.263)	16.16 (3.183)	199 (92.9)	69 (20.7)	75 (23.9)	29.027 (98.019)
Standard Power take-off Speed (540 rpm)—One Hour								
69.32 (51.69)	2035	4.045 (15.312)	0.408 (0.248)	17.14 (3.376)	199 (92.9)	70 (20.9)	75 (23.9)	28.963 (97.878)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
65.94 (49.17)	2468	4.099 (15.516)	0.435 (0.265)	16.09 (3.169)	186 (85.5)	70 (21.1)	75 (23.9)	....
0.00 (0.00)	2548	1.312 (4.966)	....	....	172 (77.8)	70 (21.1)	75 (23.9)	....
33.57 (25.03)	2514	2.555 (9.672)	0.533 (0.324)	13.14 (2.588)	178 (81.1)	70 (21.1)	75 (23.9)	....
75.43 (56.25)	2400	4.712 (17.837)	0.437 (0.266)	16.01 (3.154)	194 (90.0)	70 (20.8)	75 (23.9)	....
16.91 (12.61)	2532	1.938 (7.336)	0.802 (0.488)	8.73 (1.719)	176 (80.0)	70 (20.8)	74 (23.6)	....
50.06 (37.33)	2500	3.216 (12.174)	0.449 (0.273)	15.57 (3.066)	179 (81.7)	70 (20.8)	74 (23.6)	....
Av 40.32 *Av (30.07)*	**2493**	**2.972** *(11.250)*	**0.516** *(0.314)*	**13.57** *(2.673)*	**181** *(82.6)*	**70** *(21.0)*	**75** *(23.8)*	**28.950** *(97.760)*

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (C-2) Gear											
63.79 (47.57)	4543 (20.21)	5.27 (8.47)	2400	6.88	4.595 (17.393)	0.504 (0.307)	13.88 (2.735)	187 (85.6)	50 (10.0)	59 (15.0)	28.795 (97.236)
75% of Pull at Maximum Power—Ten Hours 8th (C-2) Gear											
51.37 (38.31)	3469 (15.43)	5.55 (8.94)	2485	5.17	3.717 (14.072)	0.506 (0.308)	13.82 (2.722)	182 (83.3)	40 (4.2)	46 (7.5)	28.879 (97.520)
50% of Pull at Maximum Power—Two Hours 8th (C-2) Gear											
35.04 (26.13)	2314 (10.29)	5.68 (9.14)	2505	3.81	2.937 (11.118)	0.586 (0.357)	11.93 (2.350)	178 (81.1)	43 (6.1)	51 (10.3)	29.015 (97.979)
50% of Pull at Reduced Engine Speed—Two Hours 10th (D-1) Gear											
35.02 (26.11)	2313 (10.29)	5.68 (9.14)	1449	3.67	2.337 (8.845)	0.467 (0.284)	14.99 (2.952)	183 (83.9)	45 (7.2)	55 (12.8)	28.970 (97.827)
MAXIMUM POWER IN SELECTED GEARS											
48.45 (36.13)	7244 (32.22)	2.51 (4.04)	2473	14.78	5th (B-2) Gear			180 (82.2)	40 (4.4)	45 (7.2)	29.030 (98.030)
61.40 (45.79)	6771 (30.12)	3.40 (5.47)	2400	12.75	6th (B-3) Gear			184 (84.4)	40 (4.4)	45 (7.2)	29.030 (98.030)
64.21 (47.88)	6005 (26.71)	4.01 (6.45)	2401	9.73	7th (C-1) Gear			186 (85.6)	47 (8.3)	54 (12.2)	28.840 (97.388)
65.24 (48.65)	4647 (20.67)	5.26 (8.47)	2398	6.82	8th (C-2) Gear			185 (85.0)	46 (7.8)	52 (11.1)	28.850 (97.422)
64.14 (47.83)	3267 (14.53)	7.36 (11.85)	2401	4.72	9th (C-3) Gear			185 (85.0)	48 (8.9)	55 (12.8)	28.830 (97.355)
63.64 (47.45)	2534 (11.27)	9.42 (15.16)	2402	3.57	10th (D-1) Gear			186 (85.6)	49 (9.4)	57 (13.9)	28.820 (97.321)

Department of Agricultural Engineering

Dates of Test: September 27 to October 17, 1983

Manufacturer: KUBOTA LTD, 2-47 Shikitsu
higashi, 1-chome, Naniwa-ku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8404 **Fuel weight** 6.997 lbs/gal *(0.839 kg/l)* **Oil SAE** 20-20W **API service classification** SE-SF, CC-CD **To motor** 2.801 gal *(10.601 l)* **Drained from motor** 2.639 gal *(9.991 l)* **Transmission and hydraulic lubricant** Sheil Donax TD or equivalent **Front axle lubricant** SAE 80/90 gear oil **Total time engine was operated** 43.5 hours.

ENGINE: Make Kubota Diesel **Type** four cylinder vertical **Serial No.** V4300-A-19536 **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 4.29" × 4.53" *(109 mm × 115 mm)* **Compression ratio** 17 to 1 **Displacement** 262 cu in *(4292 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Fuel filter** one paper element and water separator **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** M7950DTF-U50308 **Tread width** rear 59.8" *(1520 mm)* to 79.5" *(2020 mm)* front 60.6" *(1540 mm)* to 68.5" *(1740 mm)* **Wheel base** 89.0" *(2260 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 38.0" *(964 mm)* Vertical distance above roadway 39.5" *(1003 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.1 *(1.7)* second 1.4 *(2.2)* third 1.9 *(3.0)* fourth 2.4 *(3.8)* fifth 3.0 *(4.8)* sixth 4.1 *(6.6)* seventh 4.7 *(7.5)* eighth 6.0 *(9.6)* ninth 8.1 *(13.1)* tenth 10.3 *(16.5)* eleventh 13.1 *(21.1)* twelfth 17.9 *(28.8)* reverse 0.8 *(1.3)*, 1.7 *(2.8)*, 3.4 *(5.4)*, 7.5 *(12.0)* **Clutch** single plate dry disc operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 145" *(3.7 m)* left 145" *(3.7 m)* (on concrete surface without brake) right 185" *(4.7 m)* left 185" *(4.7 m)* **Turning space diameter** (on concrete surface with brake applied) right 307" *(7.8 m)* left 307" *(7.8 m)* (on concrete surface without brake) right 386" *(9.8 m)* left 386" *(9.8 m)* **Power take-off** 540 rpm at 2035 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 8th (C-2) GEAR

Crankshaft Speed rpm	2398	2165	1913	1681	1442	1194
Pull—lbs *(kN)*	4647 (20.67)	4918 (21.88)	5215 (23.20)	5389 (23.97)	5550 (24.71)	5546 (24.67)
Increase in Pull %	0	6	12	16	20	19
Power—Hp *(kW)*	65.24 (48.65)	62.01 (46.24)	57.73 (43.05)	52.20 (38.93)	45.99 (34.29)	37.99 (28.33)
Speed—Mph *(km/h)*	5.26 (8.47)	4.73 (7.61)	4.15 (6.68)	3.63 (5.85)	3.10 (4.99)	2.57 (4.13)
Slip %	6.82	7.26	8.02	8.39	8.76	8.76

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	97.5	97.5
75% of Pull at Maximum Power—Ten Hours		96.5
50% of Pull at Maximum Power—Two Hours		94.3
50% of Pull at Reduced Engine Speed—Two Hours		90.5
Bystander in 12th (D-3) gear		88.0

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (C-2) Gear											
63.01 (46.99)	4318 (19.21)	5.47 (8.81)	2401	4.97	4.573 (17.312)	0.508 (0.309)	13.78 (2.714)	189 (87.2)	55 (12.5)	65 (18.1)	28.715 (96.966)
MAXIMUM POWER IN SELECTED GEARS											
51.28 (38.24)	9641 (42.88)	1.99 (3.21)	2466	14.89	4th (B-1) Gear			184 (84.2)	40 (4.4)	44 (6.7)	28.860 (97.456)
64.72 (48.26)	4444 (19.77)	5.46 (8.79)	2399	5.07	8th (C-2) Gear			186 (85.3)	44 (6.7)	50 (10.0)	28.860 (97.456)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-30, 6, 16 *(110)*	Two 18.4-30, 6, 16 *(110)*
Ballast	—Liquid (each)	648 lb *(294 kg)*	None
	—Cast Iron (each)	407 lb *(185 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.2-24, 6, 26 *(180)*	Two 11.2-24, 6, 26 *(180)*
Ballast	—Liquid (each)	228 lb *(103 kg)*	None
	—Cast Iron (each)	320 lb *(145 kg)*	None
Height of Drawbar		17 in *(430 mm)*	17 in *(430 mm)*
Static Weight with Operator	—Rear	6230 lb *(2826 kg)*	4120 lb *(1869 kg)*
	—Front	4075 lb *(1848 kg)*	2980 lb *(1352 kg)*
	—Total	10305 lb *(4674 kg)*	7100 lb *(3221 kg)*

Kubota M7950DT Diesel

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 149°F *(64.9°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1499.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irwin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1500—FORD 1510 (12 x 4) MANUAL DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

	Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)
			gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb	
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed—Two Hours (PTO Speed—624 rpm)									
	19.72 *(14.71)*	2800	1.474 *(5.580)*	0.523 *(0.318)*	13.38 *(2.636)*	202 *(94.2)*	67 *(19.4)*	75 *(23.8)*	29.000 *(97.929)*
Standard Power Take-off Speed (540 rpm)—One Hour									
	20.45 *(15.25)*	2422	1.548 *(5.860)*	0.529 *(0.322)*	13.21 *(2.602)*	217 *(102.6)*	67 *(19.4)*	75 *(23.7)*	28.950 *(97.760)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
	17.01 *(12.68)*	2840	1.308 *(4.951)*	0.538 *(0.327)*	13.01 *(2.561)*	196 *(91.4)*	67 *(19.4)*	77 *(25.0)*	......
	0.00 *(0.00)*	2996	0.553 *(2.093)*	......	......	166 *(74.4)*	67 *(19.4)*	75 *(23.9)*	......
	8.74 *(6.52)*	2918	0.926 *(3.505)*	0.741 *(0.451)*	9.44 *(1.860)*	174 *(78.9)*	67 *(19.4)*	76 *(24.7)*	......
	20.00 *(14.91)*	2803	1.483 *(5.614)*	0.519 *(0.316)*	13.48 *(2.656)*	203 *(95.0)*	67 *(19.4)*	76 *(24.2)*	......
	4.42 *(3.30)*	2956	0.737 *(2.790)*	1.166 *(0.710)*	6.00 *(1.183)*	168 *(75.6)*	67 *(19.4)*	75 *(23.9)*	......
	12.92 *(9.63)*	2876	1.106 *(4.187)*	0.599 *(0.364)*	11.68 *(2.300)*	186 *(85.3)*	67 *(19.4)*	76 *(24.4)*	......
Av ***Av***	**10.52** ***(7.84)***	**2898**	**1.019** ***(3.857)***	**0.678** ***(0.412)***	**10.32** ***(2.033)***	**182** ***(83.4)***	**67** ***(19.4)***	**76** ***(24.3)***	**28.930** ***(97.692)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool-ing med	Air wet bulb	Air dry bulb	
Maximum Available Power—Two Hours 9th (3-3) Gear											
16.15 *(12.05)*	1090 *(4.85)*	5.56 *(8.94)*	2800	8.11	1.451 *(5.491)*	0.628 *(0.382)*	11.14 *(2.194)*	182 *(83.1)*	49 *(9.4)*	50 *(10.0)*	28.965 *(97.810)*
75% of Pull at Maximum Power—Ten Hours 9th (3-3) Gear											
12.92 *(9.63)*	844 *(3.75)*	5.74 *(9.24)*	2861	7.09	1.259 *(4.766)*	0.682 *(0.415)*	10.26 *(2.021)*	173 *(78.5)*	46 *(7.5)*	47 *(8.1)*	29.026 *(98.010)*
50% of Pull at Maximum Power—Two Hours 9th (3-3) Gear											
8.97 *(6.69)*	563 *(2.50)*	5.97 *(9.62)*	2904	4.73	1.055 *(3.995)*	0.823 *(0.501)*	8.50 *(1.674)*	172 *(77.5)*	47 *(8.3)*	48 *(8.6)*	29.010 *(97.962)*
50% of Pull at Reduced Engine Speed—Two Hours 11th (4-2) Gear											
8.97 *(6.69)*	563 *(2.50)*	5.97 *(9.61)*	1851	4.54	0.802 *(3.038)*	0.626 *(0.381)*	11.18 *(2.202)*	170 *(76.7)*	48 *(8.9)*	50 *(10.0)*	29.015 *(97.979)*
MAXIMUM POWER IN SELECTED GEARS											
12.42 *(9.26)*	1952 *(8.68)*	2.39 *(3.84)*	2852	14.94		6th (2-3) Gear		175 *(79.2)*	48 *(8.9)*	50 *(10.0)*	29.000 *(97.929)*
15.78 *(11.76)*	1886 *(8.39)*	3.14 *(5.05)*	2799	14.49		7th (3-1) Gear		184 *(84.4)*	48 *(8.9)*	50 *(10.0)*	28.990 *(97.895)*
16.21 *(12.09)*	1453 *(6.46)*	4.18 *(6.73)*	2799	10.56		8th (3-2) Gear		182 *(83.1)*	48 *(8.9)*	50 *(10.0)*	28.990 *(97.895)*
16.63 *(12.40)*	1124 *(5.00)*	5.55 *(8.94)*	2799	8.14		9th (3-3) Gear		180 *(82.2)*	49 *(9.4)*	50 *(10.0)*	28.970 *(97.827)*
16.99 *(12.67)*	921 *(4.09)*	6.92 *(11.14)*	2799	6.70		10th (4-1) Gear		180 *(82.2)*	49 *(9.4)*	51 *(10.6)*	28.970 *(97.827)*
16.78 *(12.51)*	702 *(3.12)*	8.97 *(14.43)*	2800	5.26		11th (4-2) Gear		181 *(82.8)*	49 *(9.4)*	51 *(10.6)*	28.960 *(97.794)*

Department of Agricultural Engineering

Dates of Test: October 17-25, 1983

Manufacturer: ISHIKAWAJIMA-SHIBAURA MACHINERY COMPANY LTD. Tokyo, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8404 **Fuel weight** 6.997 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 1.190 gal *(4.503 l)* **Drained from motor** 0.915 gal *(3.462 l)* **Transmission and final drive lubricant** Ford M2C-134-B fluid **Total time engine was operated** 35.5 hours.

ENGINE: Make Shibaura Diesel **Type** three cylinder vertical **Serial No.** *K773-00368* **Crankshaft** lengthwise **Rated rpm** 2800 **Bore and stroke** 3.03" × 3.15" *(77 mm × 80 mm)* **Compression ratio** 23.5 to 1 **Displacement** 68.2 cu in *(1117 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *1510*UH00345* **Tread width** rear 41.3" *(1050 mm)* to 47.3" *(1200 mm)* front 39.4" *(1000 mm)* to 52" *(1320 mm)* **Wheel base** 63" *(1600 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 22.5" *(572 mm)* Vertical distance above roadway 29.9" *(760 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.8 *(1.2)* second 1.0 *(1.5)* third 1.3 *(2.0)* fourth 1.7 *(2.8)* fifth 2.2 *(3.5)* sixth 2.8 *(4.5)* seventh 3.8 *(6.0)* eighth 4.8 *(7.7)* ninth 6.2 *(10.0)* tenth 7.6 *(12.2)* eleventh 9.7 *(15.6)* twelfth 12.5 *(20.1)* reverse 0.9 *(1.4)*, 2.0 *(3.2)*, 4.3 *(7.0)*, 8.7 *(14.0)* **Clutch** single dry disc operated by foot pedal **Brakes** drum and shoe operated by two foot pedals which can be locked together **Steering** mechanical **Turning radius** (on concrete surface with brake applied) right 92.5" *(2.35 m)* left 92.5" *(2.35 m)* (on concrete surface without brake) right 100.4" *(2.55 m)* left 100.4" *(2.55 m)* **Turning space diameter** (on concrete surface with brake applied) right 193" *(4.90 m)* left 193" *(4.90 m)* (on concrete surface without brake) right 209" *(5.30 m)* left 209" *(5.30 m)* **Power take-off** 540 rpm at 2422 engine rpm.

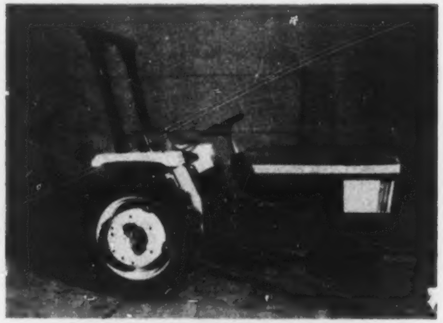
REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 9th (3-3) GEAR

Crankshaft Speed rpm	2799	2527	2250	1904	1686	1394
Pull—lbs *(kN)*	1124 *(5.00)*	1427 *(6.35)*	1472 *(6.55)*	1479 *(6.58)*	1457 *(6.48)*	1422 *(6.33)*
Increase in Pull %	0	27	31	32	30	27
Power—Hp *(kW)*	16.63 *(12.40)*	18.66 *(13.91)*	17.06 *(12.72)*	14.90 *(11.11)*	12.62 *(9.41)*	10.23 *(7.63)*
Speed—Mph *(km/h)*	5.55 *(8.94)*	4.90 *(7.89)*	4.35 *(6.99)*	3.78 *(6.08)*	3.25 *(5.23)*	2.70 *(4.34)*
Slip %	8.14	10.15	10.56	10.89	10.81	10.40

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	91.0
75% of Pull at Maximum Power—Ten Hours	91.0
50% of Pull at Maximum Power—Two Hours	90.5
50% of Pull at Reduced Engine Speed—Two Hours	86.0
Bystander in 12th (4-3) gear	80.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two,9.5-24; 4; 16 *(110)*	Two 9.5-24; 4, 16 *(110)*
Ballast	—Liquid (each)	185 lb *(84 kg)*	None
	—Cast Iron (each)	255 lb *(116 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 4.00-15; 4; 28 *(195)*	Two 4.00-15; 4, 28 *(195)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	48 lb *(22 kg)*	None
Height of Drawbar		12.5 in *(320 mm)*	12.5 in *(320 mm)*
Static Weight with Operator	—Rear	2355 lb *(1068 kg)*	1475 lb *(669 kg)*
	—Front	850 lb *(386 kg)*	755 lb *(342 kg)*
	—Total	3205 lb *(1454 kg)*	2230 lb *(1011 kg)*



Ford 1510 (12 x 4) Manual Diesel

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 130°F *(54.4°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1500.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvi: T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1501—FORD 1510 (12x4) SYNCHRO DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—613 rpm)								
19.98 *(14.90)*	2800	1.525 *(5.773)*	0.534 *(0.325)*	13.10 *(2.581)*	212 *(99.7)*	67 *(19.4)*	75 *(24.1)*	29.097 *(98.255)*
Standard Power Take-off Speed (540 rpm)—One Hour								
18.68 *(13.93)*	2464	1.383 *(5.235)*	0.518 *(0.315)*	13.50 *(2.661)*	213 *(100.6)*	67 *(19.4)*	75 *(23.9)*	29.100 *(98.266)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
17.29 *(12.89)*	2850	1.346 *(5.095)*	0.545 *(0.331)*	12.84 *(2.530)*	200 *(93.3)*	67 *(19.4)*	75 *(23.9)*	....
0.00 *(0.00)*	2996	0.553 *(2.093)*	....	....	166 *(74.2)*	67 *(19.4)*	75 *(23.9)*	....
8.91 *(6.64)*	2936	0.926 *(3.505)*	0.727 *(0.442)*	9.62 *(1.894)*	173 *(78.3)*	68 *(20.0)*	76 *(24.7)*	....
20.41 *(15.22)*	2800	1.561 *(5.909)*	0.535 *(0.325)*	13.08 *(2.576)*	207 *(97.2)*	67 *(19.4)*	74 *(23.6)*	....
4.50 *(3.36)*	2966	0.737 *(2.790)*	1.146 *(0.698)*	6.11 *(1.204)*	166 *(74.7)*	67 *(19.4)*	74 *(23.1)*	....
13.17 *(9.82)*	2894	1.123 *(4.251)*	0.597 *(0.363)*	11.72 *(2.310)*	184 *(84.4)*	68 *(20.0)*	76 *(24.4)*	....
Av 10.71 *Av (7.99)*	**2907**	**1.041** *(3.941)*	**0.680** *(0.414)*	**10.29** *(2.027)*	**183** *(83.7)*	**67** *(19.6)*	**75** *(23.9)*	**29.065** *(98.148)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (3-3) Gear											
16.30 *(12.16)*	1106 *(4.92)*	5.53 *(8.89)*	2800	8.80	1.486 *(5.626)*	0.638 *(0.388)*	10.97 *(2.160)*	185 *(85.0)*	49 *(9.4)*	51 *(10.6)*	29.070 *(98.165)*
75% of Pull at Maximum Power—Ten Hours 9th (3-3) Gear											
13.12 *(9.78)*	846 *(3.76)*	5.82 *(9.36)*	2873	6.47	1.278 *(4.837)*	0.681 *(0.415)*	10.27 *(2.023)*	177 *(80.7)*	45 *(6.9)*	52 *(11.1)*	29.318 *(99.002)*
50% of Pull at Maximum Power—Two Hours 9th (3-3) Gear											
9.05 *(6.75)*	564 *(2.51)*	6.02 *(9.69)*	2923	4.79	1.056 *(3.998)*	0.816 *(0.496)*	8.57 *(1.689)*	173 *(78.1)*	51 *(10.6)*	54 *(11.9)*	29.100 *(98.266)*
50% of Pull at Reduced Engine Speed—Two Hours 11th (4-2) Gear											
9.05 *(6.75)*	564 *(2.51)*	6.02 *(9.69)*	1875	4.72	0.806 *(3.051)*	0.623 *(0.379)*	11.22 *(2.211)*	172 *(77.8)*	53 *(11.4)*	58 *(14.2)*	29.145 *(98.418)*
MAXIMUM POWER IN SELECTED GEARS											
15.54 *(11.59)*	1900 *(8.45)*	3.07 *(4.93)*	2813	14.99	7th (3-1) Gear			176 *(79.7)*	37 *(2.8)*	39 *(3.9)*	29.150 *(98.435)*
16.18 *(12.06)*	1483 *(6.59)*	4.09 *(6.59)*	2801	12.37	8th (3-2) Gear			182 *(83.3)*	44 *(6.7)*	45 *(7.2)*	29.030 *(98.030)*
16.64 *(12.41)*	1128 *(5.02)*	5.53 *(8.90)*	2802	8.74	9th (3-3) Gear			179 *(81.7)*	44 *(6.7)*	45 *(7.2)*	29.030 *(98.030)*
16.83 *(12.55)*	942 *(4.19)*	6.70 *(10.79)*	2799	7.62	10th (4-1) Gear			179 *(81.7)*	45 *(7.2)*	46 *(7.8)*	29.040 *(98.064)*
16.67 *(12.43)*	702 *(3.12)*	8.91 *(14.34)*	2799	5.52	11th (4-2) Gear			179 *(81.4)*	46 *(7.8)*	47 *(8.3)*	29.040 *(98.064)*

LUGGING ABILITY IN 9th (3-3) GEAR

Crankshaft Speed rpm	2802	2534	2242	1943	1683	1393	1101
Pull—lbs *(kN)*	1128 *(5.02)*	1222 *(5.44)*	1292 *(5.75)*	1287 *(5.72)*	1276 *(5.68)*	1320 *(5.87)*	1278 *(5.68)*
Increase in Pull %	0	8	15	14	13	17	13
Power—Hp *(kW)*	16.64 *(12.41)*	16.18 *(12.06)*	15.03 *(11.21)*	12.95 *(9.65)*	11.12 *(8.29)*	9.49 *(7.08)*	7.29 *(5.43)*
Speed—Mph *(km/h)*	5.53 *(8.90)*	4.97 *(7.99)*	4.36 *(7.02)*	3.77 *(6.07)*	3.27 *(5.26)*	2.70 *(4.34)*	2.14 *(3.44)*
Slip %	8.74	9.45	10.12	10.28	10.28	10.61	10.28

Department of Agricultural Engineering

Dates of Test: October 18-27, 1983

Manufacturer: ISHIKAWAJIMA-SHIBAURA MACHINERY COMPANY LTD. Tokyo, Japan

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8404 **Fuel weight** 6.997 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 1.119 gal *(4.236 l)* **Drained from motor** 0.803 gal *(3.041 l)* **Transmission and final drive lubricant** Ford M2C-134-B fluid **Total time engine was operated** 41.5 hours.

ENGINE: **Make** Shibaura Diesel **Type** three cylinder vertical **Serial No.** *K773-00373* **Crankshaft** lengthwise **Rated rpm** 2800 **Bore and stroke** 3.03" × 3.15" *(77 mm × 80 mm)* **Compression ratio** 23.5 to 1 **Displacement** 68.2 cu in *(1117 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** standard **Serial No.** *1510*UH00386* **Tread width** rear 41.3" *(1050 mm)* to 47.3" *(1200 mm)* front 39.4" *(1000 mm)* to 52.0" *(1320 mm)* **Wheel base** 63" *(1600 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 22.7" *(576 mm)* Vertical distance above roadway 29.9" *(760 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.7 *(1.2)* second 1.0 *(1.5)* third 1.3 *(2.0)* fourth 1.6 *(2.5)* fifth 2.2 *(3.5)* sixth 2.8 *(4.5)* seventh 3.7 *(5.9)* eighth 4.8 *(7.7)* ninth 6.2 *(9.9)* tenth 7.4 *(11.9)* eleventh 9.6 *(15.5)* twelfth 12.5 *(20.1)* reverse 1.0 *(1.6)*, 2.2 *(3.5)*, 5.1 *(8.2)*, 10.3 *(16.5)* **Clutch** single dry disc operated by foot pedal **Brakes** drum and shoe operated by two foot pedals which can be locked together **Steering** mechanical **Turning radius** (on concrete surface with brake applied) right 92.5" *(2.35 m)* left 92.5" *(2.35 m)* (on concrete surface without brake) right 100.4" *(2.55 m)* left 100.4" *(2.55 m)* **Turning space diameter** (on concrete surface with brake applied) right 193" *(4.90 m)* left 193" *(4.90 m)* (on concrete surface without brake) right 209" *(5.30 m)* left 209" *(5.30 m)* **Power take-off** 540 rpm at 2464 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	91.5
75% of Pull at Maximum Power—Ten Hours	91.5
50% of Pull at Maximum Power—Two Hours	90.5
50% of Pull at Reduced Engine Speed—Two Hours	85.5
Bystander in 12th (4-3) gear	81.0

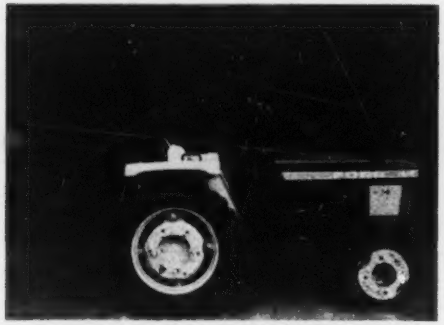
TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 9.5-24; 4; 16 *(110)*	Two 9.5-24; 4; 16 *(110)*
Ballast	—Liquid (each)	180 lb *(82 kg)*	None
	—Cast Iron (each)	228 lb *(103 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 4.00-15; 4; 32 *(220)*	Two 4.00-15; 4; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	50 lb *(23 kg)*	None
Height of Drawbar		13 in *(330 mm)*	13 in *(330 mm)*
Static Weight with Operator	—Rear	2310 lb *(1048 kg)*	1495 lb *(678 kg)*
	—Front	890 lb *(404 kg)*	790 lb *(358 kg)*
	—Total	3200 lb *(1452 kg)*	2285 lb *(1036 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 134°F *(56.8°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1501.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Ford 1510 (12x4) Synchro Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1502—FORD 1710 (12x4) MANUAL DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—602 rpm)								
23.88 (17.81)	2700	1.873 (7.090)	0.549 (0.334)	12.75 (2.512)	211 (99.6)	67 (19.4)	75 (24.0)	29.040 (98.064)
Standard Power Take-off Speed (540 rpm)—One Hour								
22.19 (16.55)	2420	1.654 (6.261)	0.521 (0.317)	13.42 (2.643)	207 (97.4)	67 (19.4)	75 (23.7)	29.035 (98.047)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
20.71 (15.44)	2755	1.629 (6.166)	0.550 (0.335)	12.71 (2.504)	200 (93.1)	67 (19.4)	76 (24.4)	....
0.00 (0.00)	2852	0.656 (2.483)	....	....	166 (74.4)	68 (20.0)	78 (25.3)	....
10.59 (7.90)	2818	1.110 (4.202)	0.733 (0.446)	9.54 (1.880)	172 (78.1)	68 (20.0)	76 (24.4)	....
24.09 (17.96)	2703	1.882 (7.124)	0.547 (0.333)	12.80 (2.521)	210 (98.9)	68 (20.0)	76 (24.7)	....
5.31 (3.96)	2835	0.879 (3.327)	1.158 (0.705)	6.04 (1.190)	168 (75.8)	67 (19.4)	76 (24.7)	....
15.73 (11.73)	2790	1.363 (5.160)	0.607 (0.369)	11.54 (2.273)	177 (80.6)	67 (19.4)	74 (23.6)	....
Av 12.74 *Av* (9.50)	2792	1.253 (4.743)	0.689 (0.419)	10.16 (2.002)	182 (83.3)	67 (19.7)	76 (24.6)	29.020 (97.996)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (3-3) Gear											
19.98 (14.90)	1317 (5.86)	5.69 (9.16)	2699	5.89	1.759 (6.660)	0.616 (0.375)	11.36 (2.237)	185 (83.9)	50 (10.0)	63 (17.2)	29.175 (98.520)
75% of Pull at Maximum Power—Ten Hours 9th (3-3) Gear											
16.17 (12.06)	1029 (4.58)	5.89 (9.48)	2750	4.32	1.504 (5.691)	0.651 (0.396)	10.76 (2.119)	182 (83.4)	56 (13.1)	68 (20.0)	28.907 (97.615)
50% of Pull at Maximum Power—Two Hours 9th (3-3) Gear											
11.04 (8.23)	686 (3.05)	6.04 (9.72)	2780	3.00	1.230 (4.655)	0.780 (0.474)	8.98 (1.768)	172 (77.8)	53 (11.4)	70 (20.8)	29.120 (98.334)
50% of Pull at Reduced Engine Speed—Two Hours 11th (4-2) Gear											
11.03 (8.23)	685 (3.05)	6.04 (9.72)	1773	2.85	0.923 (3.495)	0.586 (0.356)	11.95 (2.354)	172 (77.5)	54 (11.9)	70 (21.1)	29.085 (98.216)
MAXIMUM POWER IN SELECTED GEARS											
17.12 (12.76)	2700 (12.01)	2.38 (3.83)	2738	14.88		6th (2-3) Gear		174 (78.6)	41 (5.0)	45 (7.2)	29.170 (98.503)
20.37 (15.19)	2344 (10.42)	3.26 (5.24)	2700	11.25		7th (3-1) Gear		175 (79.4)	44 (6.7)	50 (10.0)	29.180 (98.536)
20.62 (15.38)	1794 (7.98)	4.31 (6.94)	2699	7.88		8th (3-2) Gear		174 (78.9)	45 (7.2)	51 (10.6)	29.190 (98.570)
20.81 (15.52)	1372 (6.10)	5.69 (9.16)	2700	5.91		9th (3-3) Gear		175 (79.2)	47 (8.3	54 (12.2)	29.180 (98.536)
21.02 (15.68)	1116 (4.96)	7.06 (11.37)	2700	4.78		10th (4-1) Gear		174 (78.9)	47 (8.3)	54 (12.2)	29.180 (98.536)
20.62 (15.37)	849 (3.77)	9.11 (14.66)	2701	3.76		11th (4-2) Gear		174 (78.9)	46 (7.8)	52 (11.1)	29.190 (98.570)

Department of Agricultural Engineering

Dates of Test: October 17-31, 1983

Manufacturer: ISHIKAWAJIMA-SHIBAURA MACHINERY COMPANY LTD. Tokyo, Japan

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8404 **Fuel weight** 6.997 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 1.116 gal *(4.226 l)* **Drained from motor** 0.941 gal *(3.562 l)* **Transmission and final drive lubricant** Ford M2C-134-B fluid **Total time engine was operated** 34.0 hours.

ENGINE: **Make** Shibaura Diesel **Type** three cylinder vertical **Serial No.** *H843-19361* **Crankshaft** lengthwise **Rated rpm** 2700 **Bore and stroke** 3.31" × 3.31" *(84 mm × 84 mm)* **Compression ratio** 23 to 1 **Displacement** 85.2 cu in *(1396 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** standard **Serial No.** *1710*UL00849* **Tread width** rear 43.3" *(1100 mm)* to 58.7" *(1490 mm)* front 43.5" *(1105 mm)* to 57.5" *(1460 mm)* **Wheel base** 63" *(1600 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 23.8" *(605 mm)* Vertical distance above roadway 30.7" *(780 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph** *(km/h)* first 0.8 *(1.2)* second 1.0 *(1.5)* third 1.3 *(2.0)* fourth 1.7 *(2.8)* fifth 2.2 *(3.5)* sixth 2.8 *(4.5)* seventh 3.8 *(6.0)* eighth 4.8 *(7.7)* ninth 6.2 *(10.0)* tenth 7.6 *(12.2)* eleventh 9.7 *(15.6)* twelfth 12.5 *(20.1)* reverse 0.9 *(1.4)*, 2.0 *(3.2)*, 4.3 *(7.0)*, 8.7 *(14.0)* **Clutch** single dry disc operated by foot pedal **Brakes** drum and shoe operated by two foot pedals which can be locked together **Steering** mechanical **Turning radius** (on concrete surface with brake applied) right 92.5" *(2.35 m)* left 92.5" *(2.35 m)* (on concrete surface without brake) right 100.4" *(2.55 m)* left 100.4" *(2.55 m)* **Turning space diameter** (on concrete surface with brake applied) right 193" *(4.90 m)* left 193" *(4.90 m)* (on concrete surface without brake) right 209" *(5.30 m)* left 209" *(5.30 m)* **Power take-off** 540 rpm at 2420 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 9th (3-3) GEAR

Crankshaft Speed rpm	2700	2432	2160	1894	1617	1347
Pull—lbs (kN)	1372 (6.10)	1482 (6.59)	1505 [illegible]	1549 (6.89)	1580 (7.03)	1531 (6.81)
Increase in Pull %	0	8	9	13	15	12
Power—Hp (kW)	20.81 (15.52)	20.16 (15.04)	18.16 [illegible]	16.35 (12.19)	14.22 (10.60)	11.50 (8.57)
Speed—Mph (km/h)	5.69 (9.16)	5.10 (8.21)	4.54 (7.30)	3.96 (6.37)	3.38 (5.43)	2.82 (4.53)
Slip %	5.91	6.24	6.43	6.70	6.79	6.70

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	90.5
75% of Pull at Maximum Power—Ten Hours	90.5
50% of Pull at Maximum Power—Two Hours	90.5
50% of Pull at Reduced Engine Speed—Two Hours	86.5
Bystander in 12th (4-3) gear	80.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 11.2-24; 6; 14 (95)	Two 11.2-24; 6; 14 (95)
Ballast	—Liquid (each)	240 lb (109 kg)	None
	—Cast Iron (each)	230 lb (104 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 5.00-15; 4; 32 (220)	Two 5.00-15; 4; 32 (220)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	50 lb (23 kg)	None
Height of Drawbar		13.5 in (345 mm)	13.5 in (345 mm)
Static Weight with Operator	—Rear	2510 lb (1138 kg)	1570 lb (712 kg)
	—Front	1000 lb (454 kg)	900 lb (408 kg)
	—Total	3510 lb (1592 kg)	2470 lb (1120 kg)

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 140°F *(59.9°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1502.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Ford 1710 (12x4) Manual Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1503—FORD 1710 (12X4) SYNCHRO DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

	Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed—Two Hours (PTO Speed—592 rpm)									
	23.79 *(17.74)*	2701	1.882 *(7.124)*	0.553 *(0.337)*	12.64 *(2.490)*	215 *(101.4)*	67 *(19.6)*	75 *(24.1)*	29.065 *(98.148)*
Standard Power Take-off Speed (540 rpm)—One Hour									
	22.34 *(16.66)*	2466	1.695 *(6.416)*	0.531 *(0.323)*	13.18 *(2.597)*	210 *(98.9)*	67 *(19.4)*	75 *(23.9)*	29.090 *(98.233)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
	20.76 *(15.48)*	2777	1.664 *(6.299)*	0.561 *(0.341)*	12.48 *(2.458)*	203 *(95.0)*	67 *(19.4)*	74 *(23.6)*	......
	0.00 *(0.00)*	2873	0.682 *(2.582)*	......	......	168 *(75.3)*	67 *(19.4)*	74 *(23.6)*	......
	10.59 *(7.90)*	2832	1.140 *(4.315)*	0.753 *(0.458)*	9.29 *(1.831)*	177 *(80.6)*	67 *(19.4)*	74 *(23.6)*	......
	23.90 *(17.82)*	2700	1.912 *(7.238)*	0.560 *(0.341)*	12.50 *(2.462)*	209 *(98.3)*	66 *(19.2)*	74 *(23.6)*	......
	5.32 *(3.97)*	2850	0.905 *(3.426)*	1.180 *(0.724)*	5.88 *(1.159)*	173 *(78.3)*	67 *(19.4)*	75 *(23.9)*	......
	15.73 *(11.73)*	2802	1.385 *(5.243)*	0.616 *(0.375)*	11.36 *(2.237)*	188 *(86.4)*	67 *(19.4)*	75 *(23.9)*	......
Av ***Av***	**12.72** ***(9.49)***	**2806**	**1.281** ***(4.849)***	**0.705** ***(0.429)***	**9.92** ***(1.953)***	**196** ***(85.7)***	**67** ***(19.4)***	**75** ***(23.7)***	**29.119** ***(98.300)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 9th (3-3) Gear											
20.48 *(15.27)*	1351 *(6.01)*	5.69 *(9.15)*	2700	6.20	1.855 *(7.022)*	0.634 *(0.386)*	11.04 *(2.175)*	195 *(90.6)*	52 *(10.8)*	62 *(16.7)*	29.045 *(98.081)*
75% of Pull at Maximum Power—Ten Hours 9th (3-3) Gear											
16.64 *(12.41)*	1052 *(4.68)*	5.93 *(9.54)*	2775	4.84	1.575 *(5.962)*	0.662 *(0.403)*	10.56 *(2.081)*	175 *(79.3)*	42 *(5.4)*	47 *(8.3)*	29.038 *(98.057)*
50% of Pull at Maximum Power—Two Hours 9th (3-3) Gear											
11.37 *(8.48)*	701 *(3.12)*	6.08 *(9.79)*	2803	3.57	1.291 *(4.888)*	0.794 *(0.483)*	8.81 *(1.735)*	176 *(80.0)*	52 *(11.1)*	65 *(18.1)*	29.080 *(98.199)*
50% of Pull at Reduced Engine Speed—Two Hours 11th (4-2) Gear											
11.38 *(8.49)*	702 *(3.12)*	6.08 *(9.79)*	1799	3.22	0.985 *(3.730)*	0.606 *(0.368)*	11.55 *(2.275)*	177 *(80.3)*	51 *(10.3)*	63 *(16.9)*	29.135 *(98.385)*
MAXIMUM POWER IN SELECTED GEARS											
17.21 *(12.84)*	2680 *(11.92)*	2.41 *(3.88)*	2769	14.95	6th (2-3) Gear			177 *(80.6)*	52 *(11.1)*	55 *(12.8)*	28.900 *(97.591)*
19.71 *(14.69)*	2326 *(10.34)*	3.18 *(5.11)*	2699	11.50	7th (3-1) Gear			185 *(84.7)*	52 *(11.1)*	55 *(12.8)*	28.930 *(97.692)*
20.57 *(15.34)*	1803 *(8.02)*	4.28 *(6.89)*	2700	8.37	8th (3-2) Gear			183 *(83.9)*	52 *(11.1)*	56 *(13.3)*	28.960 *(97.794)*
21.23 *(15.83)*	1402 *(6.23)*	5.68 *(9.14)*	2700	6.32	9th (3-3) Gear			189 *(87.2)*	51 *(10.6)*	58 *(14.4)*	28.990 *(97.895)*
21.08 *(15.72)*	1149 *(5.11)*	6.88 *(11.08)*	2700	5.14	10th (4-1) Gear			182 *(83.3)*	52 *(11.1)*	56 *(13.3)*	28.970 *(97.827)*
20.60 *(15.36)*	851 *(3.79)*	9.08 *(14.61)*	2701	3.89	11th (4-2) Gear			182 *(83.3)*	51 *(10.6)*	57 *(13.9)*	28.980 *(97.861)*

Department of Agricultural Engineering

Dates of Test: October 17-31, 1983

Manufacturer: ISHIKAWAJIMA-SHIBAURA MACHINERY COMPANY LTD. Tokyo, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8404 **Fuel weight** 6.997 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 1.065 gal *(4.030 l)* **Drained from motor** 0.877 gal *(3.322 l)* **Transmission and final drive lubricant** Ford M2C-134-B fluid **Total time engine was operated** 35.5 hours.

ENGINE: Make Shibaura Diesel **Type** three cylinder vertical **Serial No.** *H843-19358* **Crankshaft** lengthwise **Rated rpm** 2700 **Bore and stroke** 3.31" × 3.31" *(84 mm × 84 mm)* **Compression ratio** 23 to 1 **Displacement** 85.2 cu in *(1396 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *1710*UL00919* **Tread width** rear 43.3" *(1100 mm)* to 58.7" *(1490 mm)* front 43.5" *(1105 mm)* to 57.5" *(1460 mm)* **Wheel base** 63" *(1600 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 23.8" *(605 mm)* Vertical distance above roadway 30.7" *(780 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph (km/h)** first 0.7 *(1.2)* second 1.0 *(1.5)* third 1.3 *(2.0)* fourth 1.6 *(2.6)* fifth 2.2 *(3.5)* sixth 2.8 *(4.5)* seventh 3.7 *(5.9)* eighth 4.8 *(7.7)* ninth 6.2 *(10.0)* tenth 7.4 *(11.9)* eleventh 9.6 *(15.5)* twelfth 12.5 *(20.1)* reverse 1.0 *(1.6)*, 2.2 *(3.5)*, 5.1 *(8.2)*, 10.3 *(16.6)* **Clutch** single dry disc operated by foot pedal **Brakes** drum and shoe operated by two foot pedals which can be locked together **Steering** mechanical **Turning radius** (on concrete surface with brake applied) right 92.5" *(2.35 m)* left 92.5" *(2.35 m)* (on concrete surface without brake) right 100.4" *(2.55 m)* left 100.4" *(2.55 m)* **Turning space diameter** (on concrete surface with brake applied) right 193" *(4.90 m)* left 193" *(4.90 m)* (on concrete surface without brake) right 209" *(5.30 m)* left 209" *(5.30 m)* **Power take-off** 540 rpm at 2466 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 9th (3-3) GEAR

Crankshaft Speed rpm	2700	2432	2157	1887	1614	1344
Pull—lbs *(kN)*	1402 *(6.23)*	1425 *(6.34)*	1455 *(6.47)*	1553 *(6.91)*	1660 *(7.38)*	1651 *(7.34)*
Increase in Pull %	0	2	[illegible]	11	18	18
Power—Hp *(kW)*	21.23 *(15.83)*	19.42 *(14.48)*	17.35 [illegible]	16.31 *(12.17)*	14.84 *(11.07)*	12.30 *(9.17)*
Speed—Mph *(km/h)*	5.68 *(9.14)*	5.11 *(8.23)*	4.52 [illegible]	3.94 *(6.34)*	3.35 *(5.40)*	2.79 *(4.49)*
Slip %	6.32	6.32	6.60	7.06	7.51	7.42

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	91.0
75% of Pull at Maximum Power—Ten Hours	91.0
50% of Pull at Maximum Power—Two Hours	90.0
50% of Pull at Reduced Engine Speed—Two Hours	86.5
Bystander in 12th (4-3) gear	80.0

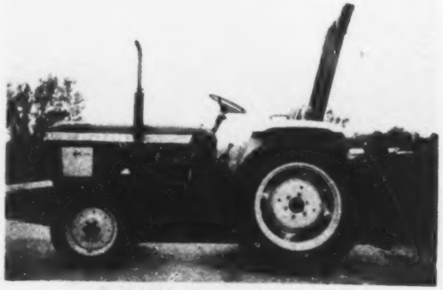
TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 11.2-24; 6; 14 *(95)*	Two 11.2-24; 6; 14 *(95)*
Ballast	—Liquid (each)	255 lb *(116 kg)*	None
	—Cast Iron (each)	215 lb *(97 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 5.00-15; 4; 32 *(220)*	Two 5.00-15; 4; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	60 lb *(27 kg)*	None
Height of Drawbar		13.5 in *(345 mm)*	13.5 in *(345 mm)*
Static Weight with Operator	—Rear	2510 lb *(1138 kg)*	1570 lb *(712 kg)*
	—Front	1020 lb *(463 kg)*	900 lb *(408 kg)*
	—Total	3530 lb *(1601 kg)*	2470 lb *(1120 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 150°F *(65.7°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1503.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Ford 1710 (12x4) Synchro Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1504 — JOHN DEERE 750 DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—565 rpm)								
18.54 *(13.83)*	2400	1.249 *(4.728)*	0.471 *(0.287)*	14.84 *(2.925)*	196 *(91.1)*	64 *(17.6)*	75 *(24.0)*	28.940 *(97.726)*
Standard Power Take-off Speed (540 rpm) — One hour)								
19.80 *(14.76)*	2295	1.314 *(4.974)*	0.465 *(0.283)*	15.06 *(2.967)*	199 *(92.7)*	64 *(17.7)*	75 *(23.7)*	28.955 *(97.777)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
16.14 *(12.04)*	2458	1.127 *(4.266)*	0.489 *(0.297)*	14.32 *(2.822)*	187 *(86.1)*	63 *(17.2)*	75 *(23.9)*	....
0.00 *(0.00)*	2568	0.433 *(1.639)*	....	....	159 *(70.6)*	64 *(17.5)*	74 *(23.6)*	....
8.23 *(6.14)*	2516	0.772 *(2.922)*	0.656 *(0.399)*	10.67 *(2.101)*	166 *(74.7)*	63 *(17.2)*	74 *(23.6)*	....
18.84 *(14.05)*	2399	1.264 *(4.785)*	0.470 *(0.286)*	14.90 *(2.936)*	192 *(89.2)*	63 *(17.2)*	75 *(23.9)*	....
4.17 *(3.11)*	2542	0.600 *(2.271)*	1.007 *(0.613)*	6.95 *(1.369)*	162 *(72.2)*	64 *(17.5)*	75 *(23.9)*	....
12.20 *(9.10)*	2481	0.934 *(3.536)*	0.536 *(0.326)*	13.06 *(2.574)*	172 *(77.8)*	62 *(16.9)*	74 *(23.3)*	....
Av 9.93 **Av *(7.40)***	**2494**	**0.855** ***(3.237)***	**0.603** ***(0.367)***	**11.61** ***(2.286)***	**173** ***(78.4)***	**63** ***(17.3)***	**75** ***(23.7)***	**28.970** ***(97.827)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
Maximum Available Power—Two Hours 7th Gear											
15.30 *(11.41)*	895 *(3.98)*	6.41 *(10.32)*	2399	5.98	1.226 *(4.640)*	0.581 *(0.341)*	12.48 *(2.459)*	180 *(81.9)*	57 *(13.6)*	61 *(15.8)*	28.785 *(97.203)*
75% of Pull at Maximum Power—Ten Hours 7th Gear											
12.09 *(9.01)*	691 *(3.07)*	6.56 *(10.55)*	2449	5.75	1.048 *(3.967)*	0.607 *(0.369)*	11.53 *(2.272)*	171 *(76.9)*	51 *(10.6)*	52 *(11.1)*	28.750 *(97.084)*
50% of Pull at Maximum Power—Two Hours 7th Gear											
8.44 *(6.29)*	461 *(2.05)*	6.87 *(11.06)*	2494	3.04	0.858 *(3.248)*	0.712 *(0.433)*	9.83 *(1.937)*	170 *(76.7)*	60 *(15.5)*	66 *(18.6)*	28.720 *(96.981)*
50% of Pull at Reduced Engine Speed—Two Hours 8th Gear											
8.46 *(6.31)*	461 *(2.05)*	6.88 *(11.07)*	1543	2.99	0.672 *(2.545)*	0.556 *(0.338)*	12.58 *(2.478)*	171 *(76.9)*	58 *(14.2)*	62 *(16.4)*	28.710 *(96.949)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Gear	Cool-ing med	Air wet bulb	Air dry bulb	Barom inch Hg (kPa)
13.45 *(10.03)*	1661 *(7.39)*	3.04 *(4.89)*	2432	14.76	5th Gear	173 *(78.3)*	52 *(11.1)*	54 *(12.2)*	28.820 *(97.321)*
15.30 *(11.41)*	1369 *(6.09)*	4.19 *(6.75)*	2399	9.96	6th Gear	175 *(79.4)*	52 *(11.1)*	54 *(12.2)*	28.820 *(97.321)*
15.73 *(11.73)*	921 *(4.09)*	6.41 *(10.31)*	2399	6.03	7th Gear	181 *(82.8)*	58 *(14.4)*	62 *(16.7)*	28.780 *(97.186)*

LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2399	2155	1916	1680	1433	1193
Pull—lbs *(kN)*	921 *(4.09)*	1136 *(5.05)*	1254 *(5.58)*	1337 *(5.95)*	1287 *(5.72)*	1187 *(5.28)*
Increase in Pull %	0	23	36	45	40	29
Power—Hp *(kW)*	15.73 *(11.73)*	17.14 *(12.78)*	16.65 *(12.42)*	15.42 *(11.50)*	12.70 *(9.47)*	9.84 *(7.33)*
Speed—Mph *(km/h)*	6.41 *(10.31)*	5.66 *(9.11)*	4.98 *(8.02)*	4.32 *(6.95)*	3.70 *(5.95)*	3.11 *(5.00)*
Slip %	6.03	7.60	8.54	9.46	9.13	8.29

Department of Agricultural Engineering

Dates of Test: October 31 to November 10, 1983

Manufacturer: YANMAR DIESEL ENGINE COMPANY, LTD., Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8406 **Fuel weight** 6.999 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 0.848 gal *(3.209 l)* **Drained from motor** 0.715 gal *(2.707 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic oil **Total time engine was operated** 37.0 hours.

ENGINE: Make Yanmar Diesel **Type** three cylinder vertical **Serial No.** *CH3043D006271* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.15" × 3.35" *(80 mm × 85 mm)* **Compression ratio** 22.5 to 1 **Displacement** 78.2 cu in *(1281 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *CH750S007229* **Tread width** rear 35.0" *(889 mm)* to 39.0" *(991 mm)* front 35.4" *(900 mm)* **Wheel base** 61.0" *(1550 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 24.5" *(622 mm)* Vertical distance above roadway 26.3" *(668 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.8 *(1.3)* second 1.1 *(1.8)* third 1.6 *(2.6)* fourth 2.6 *(4.2)* fifth 3.6 *(5.8)* sixth 4.8 *(7.7)* seventh 7.0 *(11.3)* eighth 11.4 *(18.3)* reverse 0.9 *(1.4)*, 3.9 *(6.2)* **Clutch** single dry disc operated by foot pedal **Brakes** drum and shoe operated by two foot pedals which can be locked together **Steering** mechanical **Turning radius** (on concrete surface with brake applied) right 86.5" *(2.2 m)* left 86.5" *(2.2 m)* (on concrete surface without brake) right 94.5" *(2.4 m)* left 94.5" *(2.4 m)* **Turning space diameter** (on concrete surface with brake applied) right 177" *(4.5 m)* left 177" *(4.5 m)* (on concrete surface without brake) right 193" *(4.9 m)* left 193" *(4.9 m)* **Power take-off** 540 rpm at 2295 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	89.5
75% of Pull at Maximum Power—Ten Hours	88.5
50% of Pull at Maximum Power—Two Hours	88.0
50% of Pull at Reduced Engine Speed—Two Hours	85.5
Bystander in 8th gear	75.5

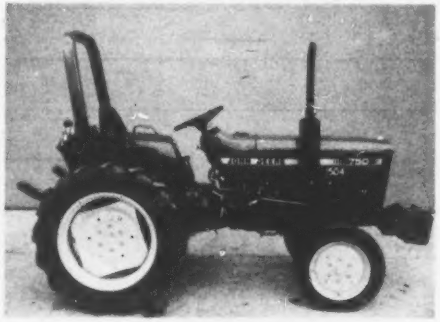
TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 9.5-24; 4; 12 *(83)*	Two 9.5-24; 4; 12 *(83)*
Ballast	—Liquid (each)	None	None
	—Test Equip (each)	60 lb *(27 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 4.00-15; 4; 52 *(360)*	Two 4.00-15; 4; 52 *(360)*
Ballast	—Liquid (each)	None	None
	—Test Equip (each)	18 lb *(8 kg)*	None
Height of Drawbar		13 in *(330 mm)*	13 in *(330 mm)*
Static Weight with Operator—Rear		1385 lb *(628 kg)*	1265 lb *(574 kg)*
—Front		765 lb *(347 kg)*	730 lb *(331 kg)*
—Total		2150 lb *(975 kg)*	1995 lb *(905 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 143°F *(61.8°C)*. Three gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1504.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



John Deere 750 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1505 — JOHN DEERE 1450 DIESEL 9 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—579 rpm)								
51.39 *(38.32)*	2400	2.958 *(11.197)*	0.403 *(0.245)*	17.38 *(3.422)*	186 *(85.6)*	61 *(16.0)*	75 *(23.9)*	28.740 *(97.051)*
Standard Power Take-off Speed (540 rpm) — One hour)								
50.93 *(37.98)*	2237	2.893 *(10.951)*	0.398 *(0.242)*	17.60 *(3.468)*	186 *(85.6)*	61 *(16.1)*	75 *(23.7)*	28.715 *(96.966)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
44.73 *(33.36)*	2458	2.666 *(10.092)*	0.417 *(0.254)*	16.78 *(3.306)*	184 *(84.4)*	61 *(16.1)*	75 *(23.9)*	....
0.00 *(0.00)*	2556	0.862 *(3.263)*	....	....	179 *(81.7)*	60 *(15.8)*	74 *(23.1)*	....
22.77 *(16.98)*	2503	1.732 *(6.556)*	0.532 *(0.324)*	13.15 *(2.590)*	182 *(83.1)*	59 *(15.3)*	74 *(23.3)*	....
51.10 *(38.11)*	2400	2.945 *(11.148)*	0.403 *(0.245)*	17.35 *(3.419)*	187 *(86.1)*	59 *(15.0)*	75 *(23.9)*	....
11.56 *(8.62)*	2537	1.286 *(4.868)*	0.779 *(0.474)*	8.99 *(1.771)*	180 *(82.2)*	58 *(14.7)*	74 *(23.6)*	....
33.85 *(25.23)*	2478	2.216 *(8.388)*	0.459 *(0.279)*	15.26 *(3.008)*	183 *(83.9)*	58 *(14.4)*	74 *(23.6)*	....
Av 27.33 ***Av (20.38)***	**2489**	**1.951** ***(7.385)***	**0.500** ***(0.304)***	**14.01** ***(2.760)***	**182** ***(83.6)***	**59** ***(15.2)***	**74** ***(23.6)***	**28.720** ***(96.983)***

DRAWBAR PERFORMANCE

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg *(kPa)*
Maximum Available Power—Two Hours 6th (II-3) Gear											
43.17 *(32.19)*	2951 *(13.12)*	5.49 *(8.83)*	2400	5.33	2.929 *(11.087)*	0.475 *(0.289)*	14.74 *(2.903)*	188 *(86.7)*	63 *(17.2)*	69 *(20.3)*	29.020 *(97.996)*
75% of Pull at Maximum Power—Ten Hours 6th (II-3) Gear											
34.68 *(25.86)*	2244 *(9.98)*	5.79 *(9.33)*	2497	3.87	2.538 *(9.606)*	0.512 *(0.312)*	13.67 *(2.692)*	177 *(80.5)*	42 *(5.5)*	43 *(5.9)*	29.171 *(98.506)*
50% of Pull at Maximum Power—Two Hours 6th (II-3) Gear											
23.36 *(17.42)*	1496 *(6.65)*	5.86 *(9.43)*	2494	2.70	2.007 *(7.599)*	0.601 *(0.366)*	11.64 *(2.293)*	179 *(81.4)*	63 *(17.2)*	66 *(18.6)*	28.960 *(97.794)*
50% of Pull at Reduced Engine Speed—Two Hours 7th (III-1) Gear											
23.35 *(17.41)*	1496 *(6.65)*	5.85 *(9.42)*	1809	2.64	1.643 *(6.220)*	0.493 *(0.300)*	14.21 *(2.799)*	184 *(84.2)*	61 *(16.1)*	66 *(18.6)*	28.975 *(97.844)*

MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Gear	Cooling med	Air wet bulb	Air dry bulb	Barom inch Hg *(kPa)*
36.28 *(27.06)*	5321 *(23.67)*	2.56 *(4.12)*	2441	14.88	4th (II-1) Gear	186 *(85.6)*	63 *(17.2)*	70 *(21.1)*	29.010 *(97.962)*
43.31 *(32.30)*	4060 *(18.06)*	4.00 *(6.44)*	2398	7.98	5th (II-2) Gear	188 *(86.4)*	63 *(17.2)*	70 *(21.1)*	29.010 *(97.962)*
43.75 *(32.62)*	2992 *(13.31)*	5.48 *(8.83)*	2401	5.38	6th (II-3) Gear	188 *(86.7)*	63 *(17.2)*	70 *(21.1)*	29.020 *(97.996)*
43.79 *(32.66)*	2137 *(9.51)*	7.68 *(12.37)*	2401	3.72	7th (III-1) Gear	188 *(86.7)*	63 *(17.2)*	70 *(21.1)*	29.020 *(97.996)*

LUGGING ABILITY IN 6th (II-3) GEAR

Crankshaft Speed rpm	2401	2162	1910	1676	1437	1197
Pull—lbs *(kN)*	2992 *(13.31)*	3330 *(14.81)*	3604 *(16.03)*	3736 *(16.62)*	3810 *(16.95)*	3736 *(16.62)*
Increase in Pull %	0	11	20	25	27	25
Power—Hp *(kW)*	43.75 *(32.62)*	43.53 *(32.46)*	41.43 *(30.90)*	37.46 *(27.93)*	32.67 *(24.36)*	26.73 *(19.93)*
Speed—Mph *(km/h)*	5.48 *(8.83)*	4.90 *(7.89)*	4.31 *(6.94)*	3.76 *(6.05)*	3.22 *(5.17)*	2.68 *(4.32)*
Slip %	5.38	6.11	6.82	7.17	7.29	7.03

Department of Agricultural Engineering

Dates of Test: October 31 to November 9, 1983

Manufacturer: YANMAR DIESEL ENGINE COMPANY, LTD., Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8406 **Fuel weight** 6.999 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 2.320 gal *(8.784 l)* **Drained from motor** 2.093 gal *(7.922 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic oil **Total time engine was operated** 47.0 hours.

ENGINE: Make Yanmar Diesel **Type** four cylinder vertical **Serial No.** *CH4078D000106* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.74" × 4.33" *(95 mm × 110 mm)* **Compression ratio** 18.1 to 1 **Displacement** 190 cu in *(3118 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil **Fuel filter** one paper cartridge and prestrainer **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *CH1450A001010* **Tread width** rear 51.2" *(1300 mm)* to 78.7" *(2000 mm)* front 55.9" *(1420 mm)* to 80.7" *(2050 mm)* **Wheel base** 82.8" *(2102 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.3" *(769 mm)* Vertical distance above roadway 31.8" *(808 mm)* Horizontal distance from center of rear wheel tread 0.2" *(5 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.3 *(2.1)* second 1.9 *(3.1)* third 2.5 *(4.1)* fourth 3.0 *(4.9)* fifth 4.4 *(7.2)* sixth 5.9 *(9.6)* seventh 8.2 *(13.1)* eighth 12.0 *(19.4)* ninth 16.0 *(25.8)* reverse 1.9 *(3.1)*, 4.5 *(7.2)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 118" *(3.0 m)* left 118" *(3.0 m)* (on concrete surface without brake) right 138" *(3.5 m)* left 138" *(3.5 m)* **Turning space diameter** (on concrete surface with brake applied) right 244" *(6.2 m)* left 244" *(6.2 m)* (on concrete surface without brake) right 284" *(7.2 m)* left 284" *(7.2 m)* **Power take-off** 540 rpm at 2237 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	94.5
75% of Pull at Maximum Power—Ten Hours	93.5
50% of Pull at Maximum Power—Two Hours	94.0
50% of Pull at Reduced Engine Speed—Two Hours	90.0
Bystander in 9th (III-3) gear	87.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9-28; 6; 16 *(110)*	Two 16.9-28; 6; 16 *(110)*
Ballast	—Liquid (each)	482 lb *(219 kg)*	None
	—Cast Iron (each)	130 lb *(68 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 7.50-16; 6; 36 *(250)*	Two 7.50-16; 6; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	38 lb *(17 kg)*	None
Height of Drawbar		18.5 in *(470 mm)*	18.5 in *(470 mm)*
Static Weight with Operator	—Rear	4625 lb *(2098 kg)*	3360 lb *(1524 kg)*
	—Front	1945 lb *(882 kg)*	1870 lb *(848 kg)*
	—Total	6570 lb *(2980 kg)*	5230 lb *(2372 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 139°F *(59.6°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1505.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 1450 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director

NEBRASKA TRACTOR TEST 1506 — JOHN DEERE 1650 DIESEL
9 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—555 rpm)								
62.22 (46.40)	2300	3.338 (12.636)	0.376 (0.228)	18.64 (3.672)	187 (86.1)	64 (17.6)	75 (23.8)	29.027 (98.019)
Standard Power Take-off Speed (540 rpm) — One hour)								
62.70 (46.76)	2237	3.333 (12.617)	0.372 (0.226)	18.81 (3.706)	188 (86.8)	63 (17.2)	75 (24.1)	29.020 (97.996)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
53.92 (40.21)	2344	2.975 (11.262)	0.386 (0.235)	18.13 (3.570)	184 (84.4)	63 (17.2)	75 (23.9)	....
0.00 (0.00)	2476	0.827 (3.131)	....	....	177 (80.6)	63 (17.2)	75 (23.9)	....
27.82 (20.75)	2417	1.907 (7.219)	0.480 (0.292)	14.58 (2.874)	178 (80.8)	62 (16.9)	74 (23.6)	....
62.71 (46.76)	2300	3.343 (12.655)	0.373 (0.227)	18.76 (3.695)	186 (85.8)	63 (17.2)	74 (23.6)	....
14.11 (10.52)	2453	1.365 (5.166)	0.676 (0.411)	10.35 (2.039)	178 (81.4)	64 (17.8)	75 (23.9)	....
41.20 (30.72)	2388	2.447 (9.263)	0.416 (0.253)	16.83 (3.316)	180 (81.9)	63 (17.2)	74 (23.1)	....
Av 33.29 Av (24.83)	2396	2.144 (8.116)	0.431 (0.274)	15.53 (3.058)	181 (82.5)	63 (17.3)	75 (23.7)	29.010 (97.962)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (II-3) Gear											
53.13 (39.62)	3583 (15.94)	5.56 (8.95)	2290	6.07	3.329 (12.602)	0.439 (0.267)	15.96 (3.144)	183 (83.9)	51 (10.3)	54 (11.9)	28.915 (97.642)
75% of Pull at Maximum Power—Ten Hours 6th (II-3) Gear											
42.77 (31.89)	2733 (12.16)	5.87 (9.45)	2387	4.52	2.856 (10.812)	0.467 (0.284)	14.97 (2.950)	178 (80.9)	34 (1.2)	37 (2.8)	29.058 (98.125)
50% of Pull at Maximum Power—Two Hours 6th (II-3) Gear											
29.24 (21.81)	1822 (8.10)	6.02 (9.69)	2419	3.35	2.257 (8.545)	0.540 (0.329)	12.95 (2.552)	173 (78.1)	30 (−1.4)	31 (−0.8)	29.100 (98.266)
50% of Pull at Reduced Engine Speed—Two Hours 7th (III-1) Gear											
29.24 (21.80)	1822 (8.10)	6.02 (9.69)	1757	3.32	1.922 (7.274)	0.460 (0.280)	15.21 (2.997)	174 (78.9)	31 (−0.6)	33 (0.6)	29.065 (98.148)
MAXIMUM POWER IN SELECTED GEARS											
45.94 (34.26)	6572 (29.23)	2.62 (4.22)	2337	14.60	4th (II-1) Gear			175 (79.2)	29 (−1.7)	30 (−1.1)	29.090 (98.233)
53.66 (40.01)	4970 (22.11)	4.05 (6.52)	2302	9.06	5th (II-2) Gear			184 (84.4)	46 (7.8)	48 (8.9)	29.000 (97.929)
54.03 (40.29)	3644 (16.21)	5.56 (8.95)	2302	6.23	6th (II-3) Gear			184 (84.4)	47 (8.3)	49 (9.4)	28.990 (97.895)
54.06 (40.31)	2602 (11.57)	7.79 (12.54)	2301	4.42	7th (III-1) Gear			184 (84.4)	45 (7.2)	48 (8.9)	29.000 (97.929)

LUGGING ABILITY IN 6th (II-3) GEAR

Crankshaft Speed rpm	2302	2073	1838	1613	1385	1148
Pull—lbs (kN)	3644 (16.21)	4015 (17.86)	4293 (19.10)	4361 (19.40)	4366 (19.42)	4105 (18.26)
Increase in Pull %	0	10	18	20	20	13
Power—Hp (kW)	54.03 (40.29)	53.26 (39.72)	50.20 (37.43)	44.64 (33.29)	38.29 (28.55)	30.03 (22.39)
Speed—Mph (km/h)	5.56 (8.95)	4.97 (8.01)	4.38 (7.06)	3.84 (6.18)	3.29 (5.29)	2.74 (4.41)
Slip %	6.23	6.84	7.32	7.56	7.56	7.32

Department of Agricultural Engineering

Dates of Test: October 31 to November 11, 1983

Manufacturer: YANMAR DIESEL ENGINE COMPANY, LTD., Osaka, Japan

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8406 **Fuel weight** 6.999 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 1.927 gal *(7.296 l)* **Drained from motor** 1.565 gal *(5.922 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic oil **Total time engine was operated** 35.5 hours.

ENGINE: **Make** Yanmar Diesel **Type** four cylinder vertical with turbocharger **Serial No.** *CH4078T000109* **Crankshaft** lengthwise **Rated rpm** 2300 **Bore and stroke** 3.74" × 4.33" *(95 mm × 110 mm)* **Compression ratio** 16.8 to 1 **Displacement** 190 cu in *(3118 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil **Fuel filter** one paper cartridge and prestrainer **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** standard **Serial No.** *CH1650A001016* **Tread width** rear 63.0" *(1600 mm)* to 75.0" *(1905 mm)* front 55.9" *(1420 mm)* to 80.7" *(2050 mm)* **Wheel base** 82.8" *(2102 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.0" *(763 mm)* Vertical distance above roadway 32.3" *(820 mm)* Horizontal distance from center of rear wheel tread 0.2" *(5 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph** *(km/h)* first 1.3 *(2.1)* second 1.9 *(3.1)* third 2.5 *(4.1)* fourth 3.0 *(4.8)* fifth 4.4 *(7.1)* sixth 5.9 *(9.5)* seventh 8.1 *(13.1)* eighth 11.9 *(19.2)* ninth 15.9 *(25.6)* reverse 1.9 *(3.1)*, 4.4 *(7.2)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 118" *(3.0 m)* left 118" *(3.0 m)* (on concrete surface without brake) right 138" *(3.5 m)* left 138" *(3.5 m)* **Turning space diameter** (on concrete surface with brake applied) right 244" *(6.2 m)* left 244" *(6.2 m)* (on concrete surface without brake) right 284" *(7.2 m)* left 284" *(7.2 m)* **Power take-off** 540 rpm at 2237 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	93.5
75% of Pull at Maximum Power—Ten Hours	92.5
50% of Pull at Maximum Power—Two Hours	92.5
50% of Pull at Reduced Engine Speed—Two Hours	90.5
Bystander in 9th (III-3) gear	86.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-26; 6; 16 *(110)*	Two 18.4-26; 6; 16 *(110)*
Ballast	—Liquid (each)	812 lb *(368 kg)*	None
	—Cast Iron (each)	380 lb *(173 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 7.50-16; 6; 36 *(250)*	Two 7.50-16; 6; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	25 lb *(11 kg)*	None
Height of Drawbar		19.5 in *(495 mm)*	19.5 in *(495 mm)*
Static Weight with Operator	—Rear	5835 lb *(2647 kg)*	3450 lb *(1565 kg)*
	—Front	1950 lb *(884 kg)*	1900 lb *(862 kg)*
	—Total	7785 lb *(3531 kg)*	5350 lb *(2427 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 136°F *(57.9°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1506.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 1650 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

Nebraska Tractor Tests Summarized (Tests from 1973 through 1983)

						ENGINE									-FUEL CONSUMPTION (HP Hours Per Gallon) @:-				
																	-Varying Drawbar Power-		
MAKE AND MODEL OF TRACTOR	Test No.	Fuel Used	Weight With Ballast	Lbs. Ballast Carried	No. of Cylinders	Bore and Stroke	Displacement Cu. In.	Rated RPM Dwbr.	Max. PTO HP @ Rated Engine RPM	Std. PTO RPM	Max. PTO HP @ Std. PTO RPM	Max. Drawbar HP	MPH @ Max. Dwbr. HP	Max. Lbs. Pull	Max. PTO HP @ Std. PTO RPM	PTO Average @ Varying Power	Max. Available Power	75% of Pull Max. Power	50% of Pull @ Max. Power
Allis-Chalmers																			
175	1156	Gas	8400	2010	4	4.000x4.500	226	1800	60.88	540	56.02	53.17	5.50	6875	11.78	9.44	10.22	9.64	8.20
5020	1270	Die.	3358	1298	2	3.62x3.74	77	2500	21.79	540	20.78	18.05	5.74	2346	13.99	10.99	11.07	10 51	8.62
5030	1271	Die.	3876	1346	2	3.82x3.94	90.1	2500	26.42	540	25.61	23.92	4.26	3389	13.82	11.28	11.64	11.48	9.68
5040	1230	Die.	6240	2180	3	3.740x4.330	143	2400	40.05	540	36.69	35.86	5.00	4837	15.47	11.80	12.58	12.74	10.44
5050 Diesel	1240	Die.	7690	3280	3	4.055x4.330	168	2700	51.46	540	47.16	45.22	5.68	6075	16.10	12.42	12.58	13.01	11.24
6060 8 Speed	1397	Die.	8945	2480	4	3.876x4.250	200	2300	63.83	540	64.90	52.24	4.83	6846	16.26	12.07	13.27	11.99	10.10
6080 12 Speed	1398	Die.	11790	4200	4	3.876x4.25	200	2300	83.66	1000	74.49	72.32	5.74	9003	15.70	13.14	14.27	12.81	10.93
6140 Diesel	1445	Die.	6195	1735	3	3.858x4.055	142	2500	41.08	541	38.04	33.97	5.20	4768	13.47	10.20	10.87	10.25	8.88
7000PS Diesel	1195	Die.	12580	3030	6	3.875x4.250	301	2200	106.44	1000	105.85	92.64	6.08	9907	15.70	12.21	13.21	12.27	10.16
7010PD Die. 20 Speed	1345	Die.	12790	1530	6	3.875x4.25	301	2300	106.53	1000	107.52	91.44	6.05	9426	15.46	11.57	12.59	11.48	9.68
7010PS Die. 12 Speed	1346	Die.	12740	1365	6	3.875x4.25	301	2300	106.72	1000	106.33	91.61	6.11	9516	15.43	11.74	12.43	11.35	9.58
7020 Power Shift	1259	Die.	15610	3840	6	3.875x4.250	301	2300	123.79	1000	123.50	105.36	6.59	12001	16.01	12.45	13.10	12.25	10.34
7020 Power Director	1260	Die.	15655	4085	6	3.875x4.250	301	2300	123.85	1000	125.51	107.36	6.63	11964	16.08	12.12	13.09	12.08	10.13
7030 Diesel	1119	Die.	16560	4130	6	4.250x5.000	426	2300	130.98	1000	131.14	113.28	4.94	12610	15.45	11.76	12.92	11.90	9.91
7040 Diesel	1166	Die.	17380	5585	6	4.250x5.000	426	2300	136.49	1000	136.26	117.12	4.77	13619	15.35	11.78	12.94	11.86	9.80
7040PS Diesel	1196	Die.	17355	4977	6	4.250x5.000	426	2300	136.30	1000	136.15	117.75	4.61	13547	15.51	11.95	13.05	12.29	10.39
7045 Power Director	1261	Die.	18980	4745	6	4.250x5.000	426	2300	146.18	1000	146.46	127.84	7.04	15430	14.62	11.26	12.16	11.40	9.72
7045 Powershift Diesel	1308	Die.	18990	4390	6	4.25x5.00	426	2300	146.88	1000	146.67	127.61	6.92	15449	14.92	11.32	12.58	11.71	9.62
7050 Diesel	1120	Die.	19530	5005	6	4.250x5.000	426	2300	156.49	1000	156.63	135.11	5.47	16206	16.04	12.69	13.47	12.67	10.53
7060 Diesel	1167	Die.	20430	6500	6	4.250x5.000	426	2300	161.51	1000	160.44	140.59	6.94	17370	15.99	12.71	13.63	12.75	10.55
7060PS Diesel	1197	Die.	20560	5915	6	4.250x5.000	426	2300	161.42	1000	161.65	144.13	4.92	17851	16.08	12.76	13.80	12.98	10.79
7080 Diesel	1168	Die.	21720	7115	6	4.250x5.000	426	2550	181.51	996	181.51	153.78	4.58	18478	15.71	12.24	13.23	12.11	10.02
7580 4WD	1229	Die.	25000	1490	6	4.250x5.000	426	2550	186.35	996	186.35	160.79	6.91	23310	14.81	11.47	12.22	11.39	9.40
8010 Powershift	1446	Die.	13185	555	6	3.875x4.25	301	2300	107.38	1000	109.55	93.01	6.16	9102	15.01	11.49	12.57	11.48	9.54
8030 Powershift	1447	Die.	17100	2085	6	4.25x5.00	426	2300	133.75	1000	134.42	116.65	6.35	13348	15.25	11.78	12.93	11.87	10.00
8050 Powershift	1448	Die.	19380	4075	6	4.25x5.00	426	2300	152.40	1000	155.15	134.13	4.89	16728	15.88	12.51	13.71	12.73	10.80
8070 Powershift	1449	Die.	22370	5520	6	4.25x5.00	426	2400	170.72	1000	171.44	147.29	5.87	18777	16.48	12.81	13.67	12.59	10.64
8550 Diesel	1262	Die.	29360	2320	6	5.250x5.625	731	2500	253.88	998	253.88	224.18	5.83	26220	14.57	10.94	12.47	11.45	9.35
Belarus																			
MTZ 80 Diesel	1139	Die.	11575	3735	4	4.331x4.921	290	2200	74.79	1000	73.88	65.64	5.08	8141	15.30	13.07	13.12	13.12	11.32
250 Diesel	1183	Die.	5490	939	2	4.134x4.724	127	1800	24.95	540	25.02	21.81	4.54	2280	15.56	13.23	13.19	13.20	11.80
T25A Diesel	1200	Die.	5490	939	2	4.134x4.724	127	1800	28.70	540	28.15	24.46	4.51	2570	13.95	13.46	12.21	13.48	11.94
1500 Diesel 12 Speed	1333	Die.	19885	1120	6	5.118x4.528	558	2100	168.76	1000	169.63	151.96	5.31	19311	16.48	13.69	14.53	13.98	12.25
7100 Diesel 16 Speed	1334	Die.	32460	None	12	5.118x5.512	1360	1900	269.62	1003	269.62	259.46	4.78	30845	15.85	13.26	14.82	14.35	12.56
Big Bud																			
525/50 9 Speed	1400	Die.	51920	None	6	6.25x6.25	1150	2100	....	....	....	421.49	5.64	42216	....	....	14.87	13.97	12.01
David Brown																			
885 Gasoline	1143	Gas.	6550	2530	3	3.939x4.000	146.1	2200	39.26	1000†	37.26	32.92	4.61	5308	10.96	8.19	7.55	7.00	7.21
885 Diesel	1137	Die.	6480	2125	3	3.939x4.500	164.4	2200	43.20	1000†	40.87	37.16	4.57	5135	16.61	14.03	13.85	13.73	12.67
990 Diesel	1144	Die.	9350	4690	4	3.939x4.000	194.9	2200	53.77	1000†	50.48	46.34	5.54	7335	15.53	13.23	13.37	12.91	11.14
995 Diesel	1136	Die.	9475	4325	4	3.939x4.500	219	2200	58.77	1000†	55.33	50.42	5.44	7317	16.60	13.94	13.78	13.60	12.40
1210 Diesel	1142	Die.	10440	4640	4	3.939x4.500	219	2300	65.98	1000†	59.40	57.23	6.16	8097	16.40	14.43	13.61	14.36	12.93
1212 Diesel	1138	Die.	10435	4030	4	3.939x4.500	219	2300	65.36	1000†	58.25	54.10	6.92	8137	15.35	13.84	12.56	13.27	11.82
Case																			
870 Manual Diesel	1149	Die.	13510	3435	4	4.625x5.000	336	2100	80.20	1000	77.93	71.09	5.23	10047	14.52	12.13	12.42	12.53	10.88
870 Power Shift	1150	Die.	13760	3665	4	4.625x5.000	336	2100	80.49	1000	76.52	71.04	4.39	10030	13.64	11.60	11.49	12.04	10.60
1190 Manual	1378	Die.	6780	2160	3	3.939x4.500	165	2200	43.09	540	38.54	36.60	7.60	4620	14.99	13.09	12.22	12.59	11.39
1270	1160	Die.	18910	3440	6	4.375x5.000	451	2100	135.39	1000	135.41	121.83	6.46	15648	14.23	11.14	12.16	11.49	9.88
1290 Manual	1379	Die.	9320	2750	4	3.939x4.000	195	2200	53.73	540	47.80	46.41	4.97	6851	15.20	13.34	12.41	12.90	11.68

1370 Diesel	1148	Die.	20290	4945	6	4.625x5.000	504	2200	155.56	1000	156.32	134.25	5.00	16480	15.01	10.95	12.04	10.91	9.11
1390 Manual	1380	Die.	9780	3160	4	3.939x4.500	219	2200	60.59	1000	58.40	52.16	4.92	7348	15.58	13.36	12.89	13.24	11.77
1410 Manual	1209	Die.	10910	3160	4	3.939x4.500	219	2300	80.88	540	79.35	69.25	5.32	7846	17.47	14.69	14.20	14.38	12.45
1410 Powershift	1210	Die.	10990	3150	4	3.939x4.500	219	2300	80.61	540	76.21	67.98	7.90	7815	16.86	13.76	13.34	13.21	11.45
1490 Manual	1381	Die.	11305	3600	4	3.939x4.500	219	2200	70.51	1000	68.75	60.45	5.63	8340	17.18	13.62	13.82	13.00	11.25
1490 Powershift	1382	Die.	11060	2635	4	3.939x4.500	219	2200	70.91	1000	70.48	61.56	6.76	8405	16.42	12.36	13.12	12.01	10.20
1570	1218	Die.	20350	4060	6	4.625x5.000	504	2100	180.41	1003	180.41	152.96	5.02	17115	15.09	12.47	12.72	12.46	10.99
1690 Manual (1)	1383	Die.	12470	3715	6	3.939x4.500	329	2300	90.39	1000	87.76	78.08	4.27	10536	15.95	13.95	13.20	13.50	12.28
2090 Manual Diesel	1304	Die.	15030	3120	6	4.625x5.000	504	2100	108.74	998	108.74	95.31	7.10	11655	15.40	12.23	13.41	12.69	10.73
2090 Power Shift	1295	Die.	15190	3160	6	4.625x5.00	504	2100	108.29	998	108.29	93.95	6.56	11211	14.94	11.77	12.49	11.96	10.14
2290 Manual Diesel	1296	Die.	15400	2630	6	4.625x5.000	504	2100	128.80	998	128.80	109.36	5.32	12635	14.52	11.66	12.46	11.73	10.07
2290 Powershift Diesel	1297	Die.	15840	2140	6	4.625x5.000	504	2100	129.08	998	129.08	111.68	6.25	12749	14.52	11.53	12.65	11.37	9.77
2390 Powershift Diesel	1302	Die.	18710	3120	6	4.625x5.000	504	2100	160.72	1002	160.72	146.01	6.59	16020	15.23	12.41	13.20	12.66	10.88
2590 Powershift Diesel	1303	Die.	20500	4760	6	4.625x5.000	504	2100	180.38	1003	180.38	159.01	6.57	17865	15.53	12.97	13.42	13.03	11.67
2670 Diesel	1165	Die.	25260	4450	6	4.625x5.000	504	2200	219.44	1008	219.44	194.60	5.28	23618	15.29	12.59	13.42	12.60	10.88
2870 Diesel	1241	Die.	28150	3050	6	5.000x5.710	673	2200	252.10	1009	252.10	219.61	5.72	26386	15.45	12.01	12.98	12.37	10.40
M-B 4/94	1211	Die.	13110	4620	6	3.819x5.039	346	2550	73.33	1000†	70.17	66.33	5.33	10558	15.13	10.68	12.55	11.65	9.49
4490 Diesel	1328	Die.	22450	1610	6	4.625x5.000	504	2200	175.20	1000	175.20	153.30	5.65	21400	15.27	12.36	13.30	12.52	10.87
4690 Diesel	1329	Die.	25230	2920	6	4.625x5.000	504	2200	219.62	1000	219.62	195.60	5.97	24564	15.26	12.76	13.39	12.84	11.21
4890 Diesel	1330	Die.	28460	2710	6	5.00x5.71	673	2200	253.41	1000	253.41	224.81	5.96	27627	16.32	13.02	14.19	13.27	11.36

(1) With mechanical front wheel drive.

John Deere

750 8 Speed	1504	Die.	2150	155	3	3.15x3.35	78.2	2400	18.54	540	19.80	15.73	6.41	1661	15.06	11.61	12.48	11.53	9.83
830 Diesel	1146	Die.	5714	1338	3	3.860x4.330	152	2400	35.30	540	32.62	28.46	5.19	4252	14.74	11.37	11.84	11.03	9.09
850	1280	Die.	3528	992	3	3.15x3.35	78	2600	22.27	540	20.66	18.92	4.90	2699	14.26	11.51	11.23	11.22	10.21
950	1281	Die.	3615	803	3	3.54x3.54	105	2400	27.36	540	28.05	23.46	4.98	3056	14.68	12.36	12.42	12.23	10.63
1050 Diesel	1327	Die.	4140	730	3	3.54x3.54	105	2400	33.41	540	33.42	28.15	5.27	3466	15.56	12.36	12.34	11.99	10.13
1250 Diesel	1437	Die.	5180	90	3	3.74x4.33	143	2500	40.70	540	40.98	34.01	5.39	3750	17.00	13.56	13.90	12.71	10.68
1450 9 Speed	1505	Die.	6570	1340	4	3.74x4.33	190	2400	51.39	540	50.93	43.79	7.68	5321	17.60	14.01	14.74	13.67	11.64
1530 Diesel	1147	Die.	6863	1909	3	4.020x4.330	164	2500	45.38	540	41.36	38.86	5.58	5139	14.28	11.20	12.04	11.47	9.78
1650 9 Speed	1506	Die.	7785	2435	4	3.74x4.33	190	2300	62.22	540	62.70	54.06	7.79	6572	18.81	15.53	15.96	14.97	12.95
2040 Diesel	1191	Die.	6420	1620	3	4.020x4.330	164	2500	40.86	540	37.62	34.15	5.64	4634	15.50	11.18	11.87	11.15	9.51
2040 Diesel 8 Speed	1350	Die.	6500	1465	3	4.19x4.33	179	2500	41.25	540	40.53	33.31	5.63	4873	15.62	11.73	12.02	11.35	9.03
2040 8 Speed TSS (1)	1393	Die.	6040	265	3	4.19x4.33	179	2500	40.44	540	40.22	33.21	5.16	5541	14.87	10.93	11.69	10.71	8.76
2150 16 Speed	1469	Die.	5930	820	3	4.19x4.33	179	2500	46.47	540	46.13	38.69	6.98	4875	14.77	11.15	11.88	11.24	9.47
2240 Diesel	1192	Die.	7340	2390	3	4.190x4.330	179	2500	50.37	540	46.78	41.28	5.54	5433	15.20	11.08	11.57	11.18	9.51
2240 8 Speed TSS (1)	1394	Die.	6205	310	3	4.19x4.33	179	2500	50.90	540	49.20	42.13	5.08	5777	15.32	11.75	11.98	11.45	9.78
2350 16 Speed	1470	Die.	7190	380	4	4.19x4.33	239	2500	56.18	540	55.69	47.53	6.77	5688	15.67	11.66	12.96	11.87	9.87
2550 16 Speed	1471	Die.	8485	1575	4	4.19x4.33	239	2500	65.94	540	65.53	56.24	6.22	6979	15.42	11.85	12.83	12.09	10.10
2630	1157	Die.	8430	2630	4	4.190x5.000	276	2500	70.37	540	69.02	58.15	5.38	6470	16.01	10.89	12.10	10.98	8.95
2750 16 Speed	1472	Die.	9625	2125	4	4.19x4.33	239	2500	75.35	540	75.07	63.98	4.75	7581	16.11	12.29	13.13	12.37	10.51
2840 Diesel	1249	Die.	10500	1695	6	4.020x4.330	329	2500	80.65	1000	76.27	67.47	6.21	8386	16.02	11.52	12.36	11.57	9.59
2940 Diesel 16 Speed	1351	Die.	10650	1215	6	4.19x4.33	359	2500	81.17	1000	81.46	67.98	4.64	7601	15.91	11.73	12.81	11.91	9.91
2950 16 Speed	1473	Die.	11045	945	6	4.19x4.33	359	2500	85.37	1000	85.50	73.30	6.57	8768	16.33	12.21	13.58	12.45	10.53
4040 Diesel	1267	Die.	12055	1165	6	4.250x4.750	404	2200	90.30	1002	90.80	77.85	6.36	8936	13.49	10.59	11.24	10.96	9.21
4040 Syncro Range	1359	Die.	12090	1600	6	4.25x4.75	404	2200	90.31	1002	90.31	77.04	8.14	9035	13.87	10.85	11.68	11.29	9.70
4040 Power Shift	1360	Die.	12080	1590	6	4.25x4.75	404	2200	90.79	1000	90.88	78.54	4.45	9195	13.54	10.79	11.50	11.35	9.55
4050 Quad	1474	Die.	13005	835	6	4.57x4.75	466	2200	101.49	1000	101.49	92.05	6.49	10331	15.12	11.72	13.44	12.54	10.64
4050 Powershift	1457	Die.	13030	310	6	4.57x4.75	466	2200	100.95	1000	100.95	88.75	7.88	11058	15.08	11.59	13.24	11.69	9.65
4240 Diesel	1266	Die.	14090	1695	6	4.5625x4.75	466	2200	110.94	1002	110.94	95.18	5.42	11492	14.33	11.09	12.05	11.35	9.52
4240 Syncro Range	1361	Die.	14240	2430	6	4.56x4.75	466	2200	110.81	1002	110.81	95.40	4.90	12240	14.17	11.08	12.00	11.47	9.81
4240 Power Shift	1362	Die.	14260	2440	6	4.56x4.75	466	2200	111.06	1000	111.43	95.65	4.51	12450	14.39	11.25	12.13	11.65	10.13
4250 Quad	1475	Die.	14990	1620	6	4.57x4.75	466	2200	120.21	1000	120.21	110.90	5.15	12858	15.70	12.21	13.90	12.82	10.64
4250 Powershift	1458	Die.	14970	1115	6	4.57x4.75	466	2200	120.86	1000	120.86	107.71	7.56	12802	15.78	12.33	13.81	12.08	10.17
4440 Diesel	1265	Die.	15540	2270	6	4.5625x4.75	466	2200	130.58	1002	130.58	112.56	5.02	13392	15.21	11.73	12.69	11.83	9.90
4440 Pwr Shift	1357	Die.	15775	2655	6	4.56x4.75	466	2200	130.41	1010	130.41	114.16	4.53	13738	15.32	11.83	13.15	12.22	10.60
4450 Quad	1476	Die.	16680	2380	6	4.57x4.75	466	2200	140.33	1000	140.33	125.18	5.01	15069	16.36	13.08	14.42	13.45	11.61
4450 Quad (2)	1476	Die.	16760	2005	6	4.57x4.75	466	2200	140.33	1000	140.33	128.68	4.86	16278	16.36	13.08	14.68	....	....
4450 Powershift	1459	Die.	16745	1795	6	4.57x4.75	466	2200	140.43	1000	140.43	121.94	8.03	15014	16.15	12.94	13.63	12.58	10.60
4450 Powershift (2)	1459	Die.	16625	1225	6	4.57x4.75	466	2200	140.43	1000	140.43	128.10	7.78	16154	16.15	12.94	14.55	....	....
4640 Diesel	1264	Die.	18120	None	6	4.5625x4.75	466	2200	156.30	998	156.30	134.70	6.45	15362	15.61	12.29	13.30	12.15	10.32
4640 Power Shift	1358	Die.	18585	2805	6	4.56x4.75	466	2200	155.96	1000	157.01	137.04	4.81	15989	15.87	12.17	13.53	12.55	10.78
4650 Quad	1477	Die.	19615	1615	6	4.57x4.75	466	2200	165.70	1000	165.70	145.58	6.45	16814	16.99	13.90	14.80	13.81	12.11

Nebraska Tractor Tests Summarized (Tests from 1973 through 1983)

					ENGINE										-FUEL CONSUMPTION (HP Hours Per Gallon) @:-				
																	-Varying Drawbar Power-		
MAKE AND MODEL OF TRACTOR	Test No.	Fuel Used	Weight With Ballast	Lbs. Ballast Carried	No. of Cyl-inders	Bore and Stroke	Dis-place-ment Cu. In.	Rated RPM Dwbr.	Max. PTO HP @ Rated Engine RPM	Std. PTO RPM	Max. PTO HP @ Std. PTO RPM	Max. Draw-bar HP	MPH @ Max. Dwbr. HP	Max. Lbs. Pull	Max. PTO HP @ Std. PTO RPM	PTO Average @ Varying Power	Max. Avail-able Power	75% of Pull Max. Power	50% of Pull @ Max. Power
John Deere Cont.																			
4650 Quad (2)	1477	Die.	19590	1150	6	4.57x4.75	466	2200	165.70	1000	165.70	148.33	5.19	18931	16.99	13.90	14.93	....	....
4650 Powershift	1460	Die.	19660	1075	6	4.57x4.75	466	2200	165.52	1000	165.52	143.33	8.12	16746	16.96	13.78	14.25	13.15	11.31
4650 Powershift (2)	1460	Die.	19740	695	6	4.57x4.75	466	2200	165.52	1000	165.52	146.01	8.47	18794	16.96	13.78	15.12	....	....
4840 Diesel	1263	Die.	20370	2240	6	4.5625x4.75	466	2200	180.63	1000	181.63	157.09	4.76	17307	15.85	12.47	13.35	12.54	10.76
4850 Powershift	1461	Die.	21435	2715	6	4.57x4.75	466	2200	192.99	1000	192.99	171.27	8.04	18789	17.47	14.50	14.68	13.80	12.01
4850 Powershift (2)	1461	Die.	21440	2280	6	4.57x4.75	466	2200	192.99	1000	192.99	179.63	7.67	20810	17.47	14.50	16.15	....	....
8430 Diesel	1179	Die.	23100	290	6	4.563x4.750	466	2100	178.16	993	178.16	160.39	5.56	22503	15.12	11.98	13.44	12.64	10.72
8440 Diesel	1323	Die.	26590	None	6	4.563x4.75	466	2100	179.83	993	179.83	163.26	4.97	25383	15.86	12.55	14.29	13.06	11.25
8450 Diesel	1436	Die.	29150	None	6	4.5625x4.75	466	2100	186.98	993	186.98	175.73	4.50	26567	15.69	12.91	14.45	13.53	11.63
8630 Diesel	1180	Die.	26480	1950	6	5.125x5.000	619	2100	225.59	993	225.59	202.31	4.58	26443	15.34	12.27	13.67	12.80	10.78
8640 Diesel	1324	Die.	28270	None	6	5.125x5.00	619	2100	228.75	993	228.75	208.38	4.63	27782	15.61	12.40	14.06	13.14	11.16
8650 Diesel	1435	Die.	30270	None	6	5.125x5.00	619	2100	238.56	993	238.56	221.80	5.55	28257	15.53	12.65	14.26	13.22	11.52
8850 Diesel	1434	Die.	37700	None	8	5.51x5.00	955	2100	303.99	996	303.99	274.91	6.59	35330	15.74	12.82	14.06	13.34	11.65
(1) With mechanical front wheel drive. (2) Supplementary test with radial ply tires.																			
Deutz																			
D4506	1131	Die.	7390	2880	3	3.940x4.720	172.5	2300	43.15	540	42.17	37.07	4.68	5472	18.01	14.12	14.49	14.05	12.46
D6206	1219	Die.	8780	3410	4	3.937x4.724	230	2050	60.23	540	57.00	52.41	6.04	6944	17.58	15.43	15.10	15.34	14.05
D6806	1220	Die.	11000	4605	4	3.937x4.724	230	2300	68.18	540	62.52	61.87	7.15	9095	16.55	14.73	14.63	15.05	13.52
D13006	1130	Die.	16125	4075	6	3.940x4.720	345	2400	125.77	1000	126.19	110.24	5.74	13509	17.71	14.00	14.97	13.83	11.95
DX-90 Diesel	1305	Die.	13150	3210	5	3.94x4.72	287	2300	84.47	1000	80.82	74.19	6.53	8786	16.45	14.15	13.81	14.07	12.39
DX-110 Diesel	1306	Die.	14940	2360	6	3.94x4.72	345	2300	100.29	1000	93.61	90.82	7.00	11773	15.10	13.71	13.52	14.03	12.60
DX-120	1405	Die.	14950	1980	6	4.02x4.92	374	2400	111.29	1000	101.90	97.41	7.32	12615	16.40	13.84	13.59	13.48	12.03
DX-130	1404	Die.	17630	3690	6	4.02x4.92	374	2300	121.27	1000	121.36	105.63	4.76	14406	17.63	13.77	14.14	13.10	11.26
DX-160 Diesel	1307	Die.	18710	3870	6	4.02x4.92	374	2200	145.41	1000	140.99	124.81	6.41	15172	17.82	14.47	14.56	13.95	11.93
Fiat																			
420	1293	Die.	6035	2115.	3	3.74x4.33	143	2200	41.34	540	37.45	37.71	5.65	5299	14.81	12.93	13.30	13.92	12.35
580	1292	Die.	9210	2580	3	4.055x4.33	168	2700	51.61	540	48.42	44.20	3.38	8899	14.93	12.59	12.14	12.70	10.50
780	1294	Die.	10230	2830	4	4.055x4.33	224	2500	70.36	540	66.30	64.43	4.06	7776	15.41	13.62	13.93	14.17	12.30
Ford																			
1510 (12x4) Manual	1500	Die.	3205	975	3	3.03x3.15	68.2	2800	19.72	540	20.45	16.99	6.92	1952	13.21	10.32	11.14	10.26	8.50
1510 (12x4) Synchro	1501	Die.	3200	915	3	3.03x3.15	68.2	2800	19.98	540	18.68	16.83	6.70	1900	13.50	10.29	10.97	10.27	8.57
1600 Diesel	1228	Die.	3840	1150	2	3.543x3.937	77.6	2500	23.02	540	19.78	18.53	5.76	2634	14.14	11.82	11.26	11.45	9.72
1700 Diesel	1325	Die.	3725	1110	2	3.54x3.94	77.6	2500	23.26	540	23.02	20.21	5.54	2801	13.02	11.21	10.89	11.48	10.41
1710 (12x4) Manual	1502	Die.	3510	1040	3	3.31x3.31	85.2	2700	23.88	540	22.19	21.02	7.06	2700	13.42	10.16	11.36	10.76	8.98
1710 (12x4) Synchro	1503	Die.	3530	1060	3	3.31x3.31	85.2	2700	23.79	540	22.34	21.23	5.68	2680	13.18	9.92	11.04	10.56	8.81
1900 Diesel	1326	Die.	4160	1225	3	3.35x3.31	87.2	2800	26.88	540	25.68	23.49	6.20	2964	12.58	10.38	10.41	10.89	9.32
2600 6-Speed	1204	Die.	5990	1550	3	4.200x3.800	158	2000	32.38	540	30.51	27.93	5.57	4591	14.88	11.51	12.27	11.74	10.22
2600 6-Speed	1206	Gas.	6000	1645	3	4.200x3.800	158	2000	32.78	540	31.03	28.25	5.57	4198	11.14	7.89	8.83	8.17	6.73
2600 8-Speed	1222	Die.	6000	460	3	4.200x3.800	158	2000	32.47	540	30.76	28.18	5.56	4452	14.62	11.18	11.94	11.22	9.18
2600 8-Speed	1207	Gas.	6000	1710	3	4.200x3.800	158	2000	34.18	540	32.07	30.20	5.49	4455	11.54	8.38	9.45	8.64	7.15
2610 (8x2)	1421	Die.	5940	1780	3	4.2x4.2	175	2000	36.69	540	35.14	31.45	5.52	4473	16.15	12.82	13.03	12.71	10.51
2910 (8x2)	1491	Die.	5925	1295	3	4.20x4.20	175	2000	36.62	540	35.09	30.45	5.77	4237	16.04	12.51	13.18	12.31	11.95
2910 (8x4)	1492	Die.	5955	1305	3	4.20x4.20	175	2000	36.40	540	34.75	31.03	5.68	4223	15.95	12.58	13.00	12.24	10.59
3600 6-Speed	1203	Die.	6860	2445	3	4.200x4.200	175	2000	40.49	540	37.64	34.47	5.96	5114	15.32	12.12	12.84	12.34	9.97
3600 6-Speed	1208	Gas.	6900	2665	3	4.200x4.200	175	2000	40.17	540	37.91	35.53	5.91	5158	11.23	8.07	9.29	8.77	7.05
3600 8-Speed	1221	Die.	6890	1300	3	4.200x4.200	175	2000	40.55	540	38.31	34.10	5.96	5277	15.33	12.40	12.93	12.51	10.36
3600 8-Speed	1226	Gas.	6900	1500	3	4.200x4.200	175	2000	40.62	540	38.29	35.90	5.93	5123	11.42	8.16	9.02	8.57	6.88
3610 (8x2)	1422	Die.	6340	2070	3	4.4x4.2	192	2000	42.26	540	40.17	36.80	5.85	4964	15.95	12.65	13.37	12.69	11.20
3610 (8x4)	1423	Die.	6340	2045	3	4.4x4.2	192	2000	42.47	540	40.01	35.57	8.55	4917	16.26	12.94	12.85	12.44	10.53
3910 (8x2)	1493	Die.	6440	1760	3	4.40x4.20	192	2000	42.62	540	40.39	37.02	5.93	4931	15.86	12.48	13.33	12.66	10.71

3910 (8x4)	1494	Die.	6435	1735	3	4.40x4.20	192	2000	42.67	540	41.16	36.22	5.85	4934	15.64	12.63	13.16	12.34	10.59
4100 8-Speed	1202	Die.	7500	2590	3	4.200x4.400	183	2000	45.46	540	41.13	41.14	4.63	5557	15.59	11.57	12.57	11.96	10.36
4110 (8x2)	1424	Die.	7500	2850	3	4.4x4.4	201	2200	48.33	540	42.65	41.25	4.51	5681	16.37	12.64	13.26	12.34	10.76
4110 (8x4)	1425	Die.	7500	2785	3	4.4x4.4	201	2200	49.26	540	44.06	40.59	4.92	5691	16.06	12.32	12.92	12.13	10.44
4600 8-Speed	1223	Die.	8220	2340	3	4.400x4.400	201	2200	52.44	540	46.31	45.57	5.24	6342	14.59	11.49	11.82	11.85	10.77
4610 (8x2)	1426	Die.	8190	3095	3	4.4x4.4	201	2200	52.52	540	46.72	44.51	5.17	6402	16.78	13.17	13.96	13.25	11.60
4610 (8x4)	1427	Die.	8230	3085	3	4.4x4.4	201	2200	52.32	540	47.30	43.26	5.62	6534	16.83	13.05	13.53	12.77	11.18
5600 8-Speed	1201	Die.	9690	3785	4	4.200x4.200	233	2100	60.46	540	56.85	52.22	5.49	7105	15.77	12.83	12.87	12.88	11.02
5600 16-Speed	1227	Die.	9690	2380	4	4.200x4.200	233	2100	58.46	540	56.00	49.79	5.36	7140	15.06	11.94	12.07	11.94	10.42
5610 (16x4)	1428	Die.	9700	2325	4	4.4x4.2	256	2100	62.54	540	60.58	54.63	5.69	7408	15.57	12.38	12.82	12.44	10.30
5610 (16x8)	1429	Die.	9545	3130	4	4.4x4.2	256	2100	62.57	540	59.99	53.70	6.57	7578	15.45	12.11	12.93	12.03	10.09
6600 8-Speed	1217	Die.	9660	3780	4	4.400x4.200	256	2100	70.56	1000	70.07	61.36	6.91	7131	15.43	12.86	12.28	12.71	11.35
6600 16-Speed	1224	Die.	9700	2680	4	4.400x4.200	256	2100	68.10	1000	68.05	58.74	5.22	7267	14.97	12.64	12.05	12.77	11.05
6610 (16x4)	1430	Die.	9700	2270	4	4.4x4.4	268	2100	72.13	540	68.27	61.17	5.62	7887	15.64	13.14	13.40	12.90	10.77
6610 (16x8)	1431	Die.	9700	2850	4	4.4x4.4	268	2100	7230	540	69.20	62.64	6.49	7948	15.43	12.91	13.18	12.84	10.87
6700 16-Speed	1244	Die.	9690	1180	4	4.400x4.200	255	2100	68.94	1000	68.62	58.06	7.55	6787	13.77	12.23	11.24	12.38	11.16
7600 16-Speed	1225	Die.	10760	3320	4	4.400x4.200	256	2100	84.79	1000	85.16	67.95	5.61	7779	15.95	12.35	12.44	11.77	9.92
7610 (16x4)	1432	Die.	10800	2220	4	4.4x4.4	268	2100	86.95	1000	86.79	74.22	5.53	8804	15.75	12.44	13.36	12.29	10.35
7710 (16x8)	1433	Die.	10800	2150	4	4.4x4.4	268	2100	86.62	1000	86.55	73.24	6.42	8638	15.87	12.60	13.67	12.26	10.35
7700 16-Speed	1242	Die.	10800	2400	4	4.400x4.200	255	2100	84.38	1000	84.29	71.57	7.28	7688	15.24	11.65	11.92	11.21	9.71
8700 16-Speed	1245	Die.	14760	2490	6	4.400x4.400	401	2300	110.58	1000	99.56	100.12	6.94	11581	15.02	11.91	12.37	12.28	10.93
8600 Dual Power	1121	Die.	14790	3360	6	4.400x4.400	401	2300	110.69	1000	99.32	93.26	4.88	11363	15.69	12.84	12.71	12.74	11.19
9600 Dual Power	1122	Die.	18000	6140	6	4.400x4.400	401	2200	135.46	1000	128.46	116.40	6.65	12203	16.88	12.99	13.31	12.64	11.06
9700 16-Speed	1243	Die.	17480	4620	6	4.40x4.400	401	2200	135.64	1000	129.25	118.08	6.55	15010	15.95	11.77	12.63	11.97	10.34
TW-10 Diesel	1301	Die.	15190	2325	6	4.4x4.4	401	2300	110.24	1000	101.09	97.35	5.23	12006	14.86	11.50	12.17	11.91	10.20
TW-20 Diesel	1300	Die.	17180	3945	6	4.4x4.4	401	2200	135.60	1000	131.43	121.47	7.85	14155	16.22	11.78	13.08	12.04	10.09
TW-30 Diesel	1299	Die.	19830	5205	6	4.4x4.4	401	2200	163.28	1000	157.04	144.17	8.32	16553	16.76	12.49	13.67	12.58	10.79
FW-20	1291	Die.	31000	1385	8	4.625x4.125	555	2850	....	....	....	156.85	5.45	27155	....	....	12.12	11.69	10.15
FW-30	1288	Die.	31720	410	8	5.500x4.750	903	2600	(1)	....	....	212.02	6.64	27803	....	....	13.71	12.24	10.08
					FW 30 without PTO							220.38	5.85	28302	....	....	14.16	12.73	10.96
FW40	1290	Die.	32950	2320	8	5.500x4.750	903	2600	....	....	....	238.78	6.60	28245	....	....	13.83	12.84	10.73
FW60	1289	Die.	33970	2870	8	5.500x4.750	903	2600	....	....	....	285.57	7.45	29304	....	....	14.90	13.38	11.27

(1) Equipped with controlled, hydrostatic pto with 105 output horsepower at 1000 rpm. (2) Drawbar information is from test run with radial ply tires.

Hesston Fiat

466 12 Speed	1484	Die.	6670	950	3	3.94x4.33	158	2600	45.13	540	42.68	40.03	5.79	(1)	16.74	12.41	13.66	12.87	10.95
480-8 DT and 480-8 12 & 8 Speed	1385	Die.	7805	2485	3	3.937x4.33	158	2600	42.58	540	40.36	37.07	5.07	5265	16.93	12.27	13.34	12.54	10.64
666 12 Speed	1485	Die.	8715	2425	4	3.94x4.33	211	2500	62.40	540	60.33	54.31	5.51	(2)	17.00	13.00	13.79	13.20	11.73
680DT & 680 8 Speed	1352	Die.	10000	2660	4	3.937x4.331	211	2500	62.47	1000	61.20	53.65	5.44	6252	17.40	14.19	14.80	14.20	12.45
780 DT and 780 8-Speed	1386	Die.	10100	3920	4	4.055x4.33	224	2500	70.57	540	66.67	62.06	7.61	6965	16.71	13.96	13.72	13.86	12.26
880 DT-5 & 880-5 12 Speed	1353	Die.	11560	2810	5	4.055x4.331	280	2500	81.32	1000	80.95	70.73	7.63	7554	16.27	13.23	13.50	13.44	11.65
980DT & 980 16 Speed	1354	Die.	12645	3795	6	3.937x4.33	316	2400	91.12	996	9112	77.42	5.00	8351	16.90	13.92	14.25	13.59	12.25
1180 DT Turbo	1450	Die.	16885	1935	6	4.055x4.33	335	2550	107.48	1000	104.22	93.71	4.37	12905	16.40	12.54	14.16	12.74	10.42
1380DT, 1380	1409	Die.	16995	1795	6	4.055x4.33	335	2400	123.16	1000	123.54	104.97	8.08	13105	16.49	13.30	13.60	13.01	11.62
1580DT Turbo	1451	Die.	19060	2460	6	4.528x5.118	494	2200	141.44	1000	136.14	124.15	5.48	15342	17.28	13.49	14.70	13.53	11.47
1880DT, 1880	1410	Die.	19710	3020	6	4.528x5.118	494	2200	162.46	1000	159.83	138.81	5.44	15656	17.35	13.87	14.53	13.58	12.07

(1) 2WD, 4969; 4WD, 5833. (2) 2WD, 6611; 4WD, 7433.

International Harvester

Hydro 70 Gas	1154	Gas	10140	2265	6	3.750x4.390	290.8	2400	69.61	540	64.10	55.09	7.00	8427	11.10	7.17	7.65	6.75	5.48
Hydro 70 Die	1155	Die.	10430	1990	6	3.875x4.410	312	2400	69.51	540	65.41	54.11	7.00	8310	12.40	9.31	9.45	8.76	6.97
Hydro 84 Diesel	1316	Die.	9120	3115	4	3.937x5.062	246	2400	58.73	540	56.68	43.59	7.60	6572	14.01	10.50	10.13	9.82	8.34
Hydro 86 Diesel	1337	Die.	10710	2545	6	3.875x4.375	310	2400	70.89	540	66.64	54.10	4.03	8815	14.18	10.23	9.92	9.55	8.24
Hydro 100	1158	Die.	12765	635	6	4.300x5.000	436	2400	104.17	1000	101.30	82.13	6.42	9801	14.83	10.50	10.35	10.19	8.95
Hydro 186 Diesel	1257	Die.	13430	295	6	4.300x5.000	436	2400	105.02	1000	100.31	82.77	6.56	11312	13.68	10.06	9.83	9.83	8.46
284	1277	Gas.	3596	1166	4	2.756x2.992	71.3	2600	25.75	1000	24.33	20.64	4.02	2561	11.62	9.54	9.77	8.97	7.52
284 8 Speed	1387	Die.	3600	860	3	3.27x3.94	99	2600	27.47	540	23.92	23.52	5.71	2523	14.40	10.91	10.99	10.53	9.18
464 Gas	1126	Gas.	7355	2460	4	3.562x4.390	175	2400	45.74	540	43.64	42.20	4.51	5465	10.80	8.00	9.65	8.86	7.70
464 Diesel	1127	Die.	7570	2440	3	3.875x5.060	179	2400	44.42	540	41.73	39.97	4.53	5488	14.41	11.49	12.25	12.57	10.67
484 Utility Dsl	1312	Die.	7710	2710	3	3.875x5.06	179	2200	42.42	540	41.79	38.06	4.78	5500	14.81	11.85	12.75	12.39	10.63
584 Utility & Rowcrop	1313	Die.	8850	3185	4	3.875x4.38	206	2300	52.54	540	50.96	47.47	5.07	6859	15.23	12.34	13.41	12.95	11.10

Nebraska Tractor Tests Summarized (Tests from 1973 through 1983)

						ENGINE									-FUEL CONSUMPTION (HP Hours Per Gallon) @:-				
																	-Varying Drawbar Power-		
MAKE AND MODEL OF TRACTOR	Test No.	Fuel Used	Weight With Ballast	Lbs. Ballast Carried	No. of Cylinders	Bore and Stroke	Displacement Cu. in.	Rated RPM Dwbr.	Max. PTO HP @ Rated Engine RPM	Std. PTO RPM	Max. PTO HP @ Std. PTO RPM	Max. Drawbar HP	MPH @ Max. Dwbr. HP	Max. Lbs. Pull	Max. PTO HP @ Std. PTO RPM	PTO Average @ Varying Power	Max. Available Power	75% of Pull Max. Power	50% of Pull @ Max. Power
International Harvester Cont.																			
666 Gas	1152	Gas.	10050	2360	6	3.750x4.390	290.8	2000	66.30	543	66.30	59.31	7.39	7981	11.95	8.45	10.08	9.04	7.27
666 Diesel	1151	Die.	10330	2130	6	3.875x4.410	312	2000	66.29	543	66.29	58.34	5.12	8012	14.24	11.60	12.60	11.98	10.16
674 Utility Gas	1128	Gas.	8330	3035	4	3.812x4.390	200	2400	58.53	540	56.01	53.48	7.04	6583	10.83	8.19	9.40	9.11	8.39
674 Utility Die	1129	Die.	8690	3040	4	3.875x5.060	238.6	2400	61.56	540	58.79	55.91	7.03	6833	15.25	12.16	13.52	13.11	11.31
684 Utility & Rowcrop	1314	Die.	9660	3825	4	3.875x5.06	239	2400	62.52	540	58.75	55.92	5.29	6858	15.55	12.21	13.27	13.02	11.28
686 Diesel (same as 666 Diesel)																			
686 Diesel 10 Speed	1336	Die.	10340	2360	6	3.875x4.375	310	2000	66.36	543	66.36	58.81	5.08	8043	16.07	13.16	13.93	13.27	11.53
784 Rowcrop Diesel	1315	Die.	9920	3830	4	3.937x5.062	246	2400	67.48	1000	64.09	58.65	5.18	8105	16.06	12.75	13.25	12.77	11.07
786 16 Speed	1388	Die.	11930	340	6	3.875x5.0625	358	2400	80.20	1000	77.41	70.25	4.74	9968	15.72	11.40	12.72	11.88	10.00
884 Rowcrop	1376	Die.	10150	3945	4	3.937x5.51	268	2400	72.91	1000	69.76	65.39	5.54	8116	15.76	12.47	13.48	12.91	11.05
886 Diesel	1254	Die.	13040	970	6	3.875x5.085	360	2400	86.14	1000	83.16	76.16	4.70	10485	14.29	10.55	11.77	10.92	9.21
886 Diesel 16 Speed	1338	Die.	13450	1710	6	3.875x5.063	358	2400	86.57	1000	83.91	76.25	4.69	10807	16.01	11.77	12.97	12.21	10.62
886 Dsl. 16 Speed (1)	1339	Die.	13450	1710	6	3.875x5.063	358	2400	90.56	1000	88.23	80.13	4.69	10930	15.84	11.98	12.81	12.38	10.86
(1) Serial No. 2490208 U17026 and up.																			
966 Diesel	1123	Die.	13670	1970	6	4.300x4.750	414	2600	100.80	1000	101.52	88.94	6.58	10036	15.68	10.94	12.36	11.68	9.84
986 Diesel	1255	Die.	14000	970	6	4.300x5.000	436	2400	105.68	1000	104.16	94.60	4.98	12176	15.56	11.34	12.65	11.72	10.02
1066 Turbo Diesel	1124	Die.	15260	1945	6	4.300x4.750	414	2600	125.68	1000	119.20	108.87	7.03	13000	16.37	11.32	12.78	11.97	9.99
1086 w/Radial Tires	1247	Die.	15640	2915	6	4.300x4.375	414	2400	131.41	1000	133.67	116.28	4.40	13503	16.39	11.90	13.28	12.36	10.45
1086 w/Bial Ply Tires	1247	Die.	15640	3100	6	4.300x4.375	414	2400	131.41	1000	133.67	114.14	6.66	12137	16.39	11.90	12.83	12.08	10.52
1466 Turbo Diesel	1125	Die.	16660	2990	6	4.300x5.000	436	2600	145.77	1000	145.84	127.02	6.93	13673	17.03	11.83	13.03	12.01	10.35
1566 Turbo Dsl	1174	Die.	18260	3065	6	4.300x5.000	436	2600	161.01	1000	162.31	140.35	5.64	15774	16.16	11.51	12.55	11.69	9.86
1568 Diesel	1175	Die.	17350	2400	8	4.500x4.313	550	2600	150.70	1000	147.79	133.79	5.69	14918	14.99	12.08	13.00	12.59	10.80
1586 w/Radial Tires	1248	Die.	17600	2480	6	4.300x5.000	436	2500	161.55	1000	156.09	140.65	5.55	16665	16.51	12.23	13.02	12.38	10.51
1586 w/Bias Ply Tires	1248	Die.	17600	3010	6	4.300x5.000	436	2500	161.55	1000	156.09	140.08	6.05	15124	16.51	12.28	12.74	12.38	10.54
3288 Diesel	1438	Die.	13560	1800	6	3.875x5.062	358	2400	90.46	1000	88.33	80.72	6.11	11486	15.94	11.69	13.16	12.31	10.27
3388 Diesel	1319	Die.	17850	430	6	4.300x5.000	436	2400	130.61	1000	128.59	114.42	6.67	16764	16.85	12.00	13.52	12.17	10.09
3488 Hydro	1439	Die.	13940	1060	6	4.30x5.35	466	2400	112.56	1000	107.11	83.43	6.50	12152	15.28	10.64	10.00	9.73	8.43
3588 Diesel	1320	Die.	18890	1270	6	4.300x5.350	466	2400	150.41	1000	152.07	130.94	6.65	17589	16.98	12.19	13.13	12.20	10.30
3688 Diesel	1440	Die.	14335	1135	6	4.30x5.00	436	2400	113.72	1000	112.48	100.28	7.36	12250	15.75	11.82	13.30	12.35	10.38
3788 12 Speed	1377	Die.	20820	2200	6	4.300x5.350	466	2500	170.57	1000	166.39	146.43	7.49	19069	17.12	12.22	13.24	12.25	10.06
4366 Turbo D	1153	Die.	23000	1310	6	4.300x5.350	466	2600	....	....	....	168.90	6.65	23138	....	....	12.54	11.98	10.34
4386 Diesel	1256	Die.	24930	None	6	4.300x5.350	466	2600	....	....	....	176.02	8.71	23321	....	....	12.43	11.92	10.18
4568	1216	Die.	29870	4120	8	5.3125x4.50	798	2600	....	....	....	235.72	6.76	27995	....	....	12.89	11.79	9.73
4786 Diesel	1317	Die.	34350	4150	8	5.313x4.500	798	2600	....	....	....	265.55	4.79	33468	....	....	12.80	11.92	9.86
5088 Diesel (2)	1419	Die.	16250	240	6	4.30x5.00	436	2400	136.12	1005	136.12	121.17	5.06	14960	15.32	11.65	13.23	12.04	9.90
5288 Diesel	1420	Die.	18585	1530	6	4.30x5.35	466	2400	162.60	1005	162.60	142.37	5.27	17577	16.07	12.62	13.70	12.77	10.75
5488 Diesel	1441	Die.	20005	2765	6	4.30x5.35	466	2400	187.22	1005	187.22	164.82	5.27	18646	16.20	13.00	14.16	13.15	11.21
(2) Drawbar information is from test run with radial ply tires.																			
Kubota																			
L185	1285	Die.	3370	1430	2	3.000x3.23	45.3	2800	15.33	540	14.07	13.03	5.57	1939	13.60	10.90	10.38	10.82	9.26
L185DT	1286	Die.	3415	1283	2	3.000x3.23	45.3	2800	15.45	540	14.16	12.65	3.94	2322	13.49	11.00	10.34	10.24	8.70
L225 Diesel	1145	Die.	3452	1457	3	3.000x3.23	68	2700	20.86	1000†	19.96	17.69	6.34	2015	14.25	11.12	10.71	10.78	9.36
L235	1406	Die.	3715	1280	3	3.0x3.23	68	2600	19.59	540	19.63	16.05	4.68	2440	14.33	11.34	11.33	10.85	9.23
L245	1283	Die.	3694	1498	3	3.000x3.23	68	2800	22.06	540	20.11	18.66	5.74	2067	13.98	11.07	10.74	10.70	9.16
L245DT	1284	Die.	3792	1410	3	3.000x3.23	68	2800	22.35	540	20.15	18.48	6.06	2419	14.33	11.21	10.88	10.67	9.22
L275	1407	Die.	4055	1430	3	3.23x3.23	79.3	2600	23.42	540	23.01	19.70	4.84	2717	14.57	11.55	11.62	11.07	9.95
L285 Diesel	1198	Die.	4030	1585	4	2.992x3.228	91	2400	26.45	540	23.58	22.94	6.62	3134	14.63	12.16	11.78	12.16	10.65
L295DT and L295 8 Speed	1370	Die.	4700	1805	3	3.23x3.23	79.3	2800	26.46	540	24.91	22.82	4.34	3155	14.59	11.75	11.57	11.39	9.58
L305DT and L305 8 Speed	1371	Die.	5360	2070	3	3.23x3.23	79.3	2800	26.21	540	25.14	22.96	4.16	3918	13.83	11.14	11.15	11.13	9.46

L345DT and L345 8 Speed	1372	Die.	5435	2000	4	3.90x3.23	90.7	2800	29.35	540	28.80	26.72	4.62	3795	12.76	10.58	10.68	10.81	9.15
M4050DT and M4050 8 Speed	1495	Die.	7215	2275	6	3.23x3.23	158.5	2600	45.74	540	42.10	38.02	6.17	(1)	15.06	11.57	12.00	11.52	9.88
M4500DT & M4500 16 Speed	1348	Die.	7800	2635	6	3.23x3.23	158.5	2600	49.72	540	44.49	42.50	6.16	4812	15.19	12.22	11.90	12.02	10.77
M4950DT & M4950 12 Speed	1496	Die.	8195	2395	6	3.35x3.23	170	2600	49.57	540	45.47	41.43	4.68	(2)	14.70	11.21	11.68	11.15	9.26
M5500DT and M5500 16 Speed	1369	Die.	8710	3210	3	4.134x4.528	182	2400	53.99	540	49.18	46.96	5.51	6287	16.[illegible]2	12.44	13.05	12.77	11.05
M5950DT & M5950 12 Speed	1497	Die.	9220	3100	3	4.29x4.53	196	2400	58.00	540	52.81	49.29	5.09	(3)	17.08	13.44	13.64	13.53	11.83
M6950DT & M6950 12 Speed	1498	Die.	9575	2530	4	4.13x4.53	243	2400	66.44	540	63.96	56.74	5.02	(4)	16.98	13.26	13.72	13.28	11.33
M7500DT & M7500 16 Speed	1349	Die.	9510	3530	4	4.134x4.528	243	2400	72.34	540	66.54	61.29	6.65	6327	17.83	14.15	13.93	14.20	12.40
M7950DT & M7950 12 Speed	1499	Die.	10305	3205	4	4.29x4.53	262	2400	75.44	540	6932	65.24	5.26	(5)	17.14	13.57	13.88	13.82	11.93

(1) M4050, 4259; M4050DT, 6070. (2) M4950, 5292; M4950DT, 6750. (3) M5950, 5749; M5950DT, 8350. (4) M6950, 6517; M6950DT, 8465. (5) M7950, 7244; M7950DT, 9641.

Lamborghini																			
1056DT	1269	Die.	12050	1700	6	3.86x4.72	331	2220	92.13	1000	89.98	79.51	6.86	9135	15.16	13.02	12.45	12.74	10.93
Leyland																			
245 Diesel	1177	Die.	7850	1970	3	3.600x5.000	152.7	2250	39.73	540	36.38	35.09	4.47	5056	16.30	12.60	13.02	12.67	11.29
255 Diesel	1176	Die.	8610	2310	4	3.858x4.921	230	2200	47.91	540	43.85	43.00	6.58	5891	16.42	11.10	12.78	11.81	9.50
472 & 272 Die 9 Speed	1341	Die.	11990	4580	4	3.858x4.921	230	2200	63.52	540	58.50	53.27	5.91	7224	14.97	12.28	11.32	11.67	10.48
482 & 282 Die 9 Speed	1340	Die.	12000	4590	4	3.858x4.921	230	2200	74.28	540	70.86	61.19	5.86	7032	17.58	12.63	12.70	12.10	10.09
2100 Diesel	1178	Die.	13260	4350	6	3.860x4.920	344.7	2100	88.40	1000	83.30	75.70	4.95	8617	16.29	13.20	13.16	13.24	11.24
Long																			
360 Diesel	1298	Die.	6410	1930	3	3.74x4.33	143	2400	36.16	540	31.06	31.91	5.20	4808	14.41	11.97	12.45	12.13	10.48
510 Diesel	1415	Die.	8210	3925	3	4.02x4.33	164.5	2400	49.15	540	46.91	43.27	5.14	6040	15.74	13.48	13.15	13.52	12.24
510DTC Diesel	1416	Die.	9100	3835	3	4.02x4.33	164.5	2400	49.35	540	46.41	41.37	4.63	5635	16.47	13.72	13.68	13.30	11.69
610 Diesel	1417	Die.	8985	4290	4	4.02x4.33	219	2400	64.33	540	60.57	57.48	5.37	7018	15.93	13.46	13.58	13.51	11.92
900 Diesel and 910 Diesel	1163	Die.	12575	4375	4	4.33x4.72	278	2200	72.88	1000	72.86	62.50	6.53	7843	13.06	12.15	10.97	13.00	11.38
Massey-Ferguson																			
MF154-4	1411	Die.	6920	1615	3	3.6x5.0	153	2250	42.52	540	40.38	35.40	4.52	4144	17.26	13.41	13.79	13.00	11.42
MF184-4 12 Speed	1392	Die.	7775	1395	4	3.875x5.0	236	2200	62.45	540	59.56	52.38	7.13	5500	16.41	12.37	12.61	12.11	10.69
MF205 6 Speed	1363	Die.	2840	935	2	3.46x3.46	65.2	2400	16.56	540	16.34	13.45	4.39	1995	12.97	9.62	9.98	9.65	8.03
MF205-4 6 speed	1364	Die.	3120	905	2	3.46x3.46	65.2	2400	16.40	540	16.18	13.57	4.86	2131	12.83	9.69	10.04	9.57	8.02
MF210 12 Speed	1365	Die.	3550	1090	2	3.62x3.74	77.1	2500	21.96	540	21.23	18.08	5.81	2159	13.61	11.04	10.84	10.53	9.36
MF210-4 12 Speed	1366	Die.	3765	1030	2	3.62x3.74	77.1	2500	21.77	540	21.02	17.60	6.91	2158	13.18	10.75	9.97	10.44	8.61
MF220 12 Speed	1367	Die.	4220	1455	2	3.82x3.94	90.3	2500	26.37	540	25.52	23.95	4.34	3287	13.36	11.07	11.22	11.60	10.17
MF220-4 12 Speed	1368	Die.	4487	1307	2	3.82x3.94	90.3	2500	26.48	540	26.06	22.91	3.84	3496	14.09	11.56	11.09	11.55	10.02
MF230 Gasoline	1215	Gas.	[illegible]370	1030	4	3.375x4.062	145	2000	34.34	540	31.29	29.58	5.08	3717	11.85	8.72	9.89	8.90	7.85
MF230 Diesel	1214	Die.	5110	1110	3	3.600x5.000	153	2000	34.53	540	30.80	29.66	7.64	4030	18.18	14.81	15.06	14.74	12.87
MF235 Gasoline	1194	Gas.	5785	1655	4	3.375x4.062	145	2250	41.13	540	33.87	35.29	5.86	4294	10.49	7.99	8.69	8.07	6.69
MF235 Diesel	1187	Die.	5860	1725	3	3.600x5.000	153	2250	42.39	540	35.29	36.29	5.84	4281	16.78	13.52	13.80	13.39	11.56
MF245 Diesel	1251	Die.	6150	2100	3	3.600x5.000	153	2250	42.90	540	36.50	36.75	5.92	4279	16.25	12.72	12.43	12.79	11.13
MF245 Gasoline	1252	Gas.	6020	2120	4	3.375x4.062	145	2250	41.09	540	34.15	35.50	5.90	4298	11.74	9.07	9.50	9.07	7.88
MF254 12 Speed	1478	Die.	7275	1790	3	3.60x5.00	153	2250	43.36	540	40.71	35.14	5.82	3844(1)	16.58	13.43	12.84	12.51	10.62
MF255 Gasoline	1190	Gas.	7280	1140	4	3.875x4.500	212	2000	50.01	540	47.14	43.49	5.28	5668	10.91	8.00	8.94	8.54	6.72
MF255 Diesel	1189	Die.	7130	1160	4	3.600x5.000	203	2000	50.69	540	45.55	43.72	5.28	5257	15.88	13.32	13.44	13.36	12.24
MF255 12-Speed	1250	Die.	7310	895	4	3.875x5.000	236	2000	52.68	540	48.37	44.75	7.89	5591	16.92	12.70	13.34	12.82	11.03
MF265 Diesel	1188	Die.	8200	1815	4	3.875x5.000	236	2000	60.73	540	54.76	51.87	5.23	6248	15.88	13.44	13.52	13.51	12.16
MF274 12 Speed	1479	Die.	8190	2205	4	3.875x5.00	236	2200	55.39	540	54.26	47.42	6.74	4719(2)	17.25	12.80	13.76	12.66	10.59
MF275 Diesel	1193	Die.	9330	2720	4	3.975x5.000	248	2000	67.43	540	61.76	60.16	5.16	7292	14.18	12.51	13.04	13.22	11.63
MF285 Diesel	1171	Die.	11760	4110	4	4.500x5.000	318	2000	81.96	1000	81.96	70.53	7.77	8846	14.98	12.68	12.85	12.90	11.34
MF294 12 Speed	1480	Die.	8645	1925	4	3.975x5.00	248	2100	67.39	540	64.94	56.80	6.02	5665(3)	17.58	14.53	14.68	13.95	12.54
MF1085 Diesel	1133	Die.	14385	2845	4	4.500x5.000	318	2000	81.58	1000	81.58	70.76	5.58	10355	15.82	13.21	13.43	13.15	11.55
MF1105 Diesel	1132	Die.	16725	4405	6	3.875x5.000	354	2200	100.72	1000	96.43	86.26	4.36	11365	15.43	11.53	12.37	11.55	9.81

Nebraska Tractor Tests Summarized (Tests from 1973 through 1983)

						ENGINE									-FUEL CONSUMPTION (HP Hours Per Gallon) @:-				
																	-Varying Drawbar Power-		
MAKE AND MODEL OF TRACTOR	Test No.	Fuel Used	Weight With Ballast	Lbs. Ballast Carried	No. of Cyl-inders	Bore and Stroke	Dis-place-ment Cu. In.	Rated RPM Dwbr.	Max. PTO HP @ Rated Engine RPM	Std. PTO RPM	Max. PTO HP @ Std. PTO RPM	Max. Draw-bar HP	MPH @ Max. Dwbr. HP	Max. Lbs. Pull	Max. PTO HP @ Std. PTO RPM	PTO Average @ Varying Power	Max. Avail-able Power	75% of Pull Max. Power	50% of Pull @ Max. Power
Massey-Ferguson Cont.																			
MF1135 Diesel	1135	Die.	18900	5350	6	3.875x5.000	354	2200	120.84	1000	118.47	106.52	4.56	13955	16.18	12.24	13.22	12.56	10.71
MF1155 Diesel	1134	Die.	20460	5554	8	4.250x4.75	540	2200	140.97	1000	134.11	124.90	4.40	15630	15.66	12.77	13.15	13.00	11.45
MF1505 Diesel	1172	Die.	20970	3010	8	4.500x5.000	636	2800	174.46	1000	175.95	154.10	6.98	17226	14.55	11.41	12.27	11.43	9.54
MF1805 Diesel	1173	Die.	22790	4790	8	4.500x5.000	636	2800	192.65	1000	191.60	170.17	6.95	18781	14.77	12.14	12.76	12.41	10.77
MF2640 16 Speed	1481	Die.	16380	3945	6	3.875x5.00	354	2400	90.95	1000	87.60	75.56	4.31	10623(4)	15.81	11.67	12.15	11.46	9.70
MF2675, 8-Speed	1321	Die.	14280	1930	6	3.875x5.0	354	2500	100.84	1000	95.00	86.18	5.91	10226	15.00	11.14	11.48	11.57	10.01
MF2675, 24-Speed	1309	Die.	14495	2065	6	3.875x5.0	354	2500	103.29	1000	96.67	87.47	5.09	9674	15.43	11.56	11.76	11.49	9.95
MF2705, 8-Speed	1322	Die.	16800	4295	6	3.875x5.0	354	2500	121.11	1000	114.44	101.47	6.17	12588	16.84	11.22	12.54	11.30	9.45
MF2705, 24-Speed	1310	Die.	17490	4895	6	3.875x5.0	354	2500	122.20	1000	115.85	104.23	5.30	13085	16.65	11.22	12.74	11.27	9.23
MF2745 Diesel	1311	Die.	19490	4300	8	4.25x4.75	539	2600	143.40	1000	132.21	125.17	5.51	15386	15.40	10.62	11.96	11.13	9.39
MF2775	1278	Die.	20440	4210	8	4.63x4.75	640	2600	165.95	1000	149.86	143.70	5.72	17407	16.05	11.50	12.57	11.52	9.85
MF2775 8 Speed	1389	Die.	20170	4365	8	4.63x4.75	640	2600	162.09	1000	146.87	139.68	5.73	16766	15.78	11.19	12.45	11.68	9.56
MF2805 24-Speed	1258	Die.	21170	5540	8	4.630x4.750	640	2500	194.62	1000	181.77	160.72	7.10	17369	16.29	11.33	12.21	11.14	9.27
MF2805 8 Speed	1399	Die.	21430	5395	8	4.63x4.75	640	2500	190.81	1000	186.29	164.58	5.41	17647	16.59	10.97	12.41	11.43	9.58
MF4800 Die 12 & 18 Speed	1342	Die.	30520	None	8	5.5x4.75	903	2600	179.31	1000	172.88	159.08	4.82	25294	15.10	10.12	12.13	10.73	8.39
MF4840 Die 12 & 18 Speed	1343	Die.	30920	None	8	5.5x4.75	903	2600	210.67	1000	210.61	186.36	4.84	28191	15.57	10.77	12.41	11.25	9.32
MF4880 Die 12 & 18 Speed	1344	Die.	32450	1360	8	5.5x4.75	903	2600	272.81	1000	267.38	244.57	6.54	29272	16.80	11.51	13.50	11.98	9.58
MF 4900 18 Speed	1391	Die.	33940	2975	8	5.5x4.75	903	2600	320.55	1000	323.88	278.78	6.53	30090	16.80	11.95	13.26	11.82	9.87
(1) 5279 with front drive engaged. (2) 6194 with front drive engaged. (3) 7253 with front drive engaged. (4) 13707 with front drive engaged.																			
Minneapolis-Moline																			
G955	1161	Die.	12060	None	6	4.375x5.000	454	1800	98.36	1000	98.82	83.40	5.44	8374	13.92	11.93	11.26	11.76	10.29
G1355 Diesel	1141	Die.	18070	974	6	4.750x5.500	585	2200	142.62	1007	142.62	128.95	7.89	14178	15.21	12.47	13.61	12.85	11.23
Oliver																			
2255 Diesel	1140	Die.	17990	1583	8	4.500x4.500	573	2600	146.72	1000	147.65	126.13	5.70	14770	15.66	12.47	13.43	12.95	11.25
Same																			
Panter 4WD Diesel	1185	Die.	12000	2772	5	3.860x4.720	276	2200	80.02	1000	79.10	66.67	5.75	10389	14.79	12.74	12.40	12.30	10.00
Tiger 100 Diesel	1268	Die.	11620	2500	5	4.13x4.72	317	2200	90.45	1000	89.42	78.84	6.35	9116	15.48	13.22	12.41	13.08	11.26
Buffalo 4WD Diesel	1186	Die.	13795	3708	6	4.130x4.720	380	2200	104.94	1000	104.94	88.24	4.24	10941	15.23	12.78	12.47	12.44	10.76
Satoh																			
S750DD & S750D 9 Speed	1347	Die.	5550	1620	3	3.386x4.016	108.4	2500	33.45	540	28.11	28.90	5.93	4295	11.92	10.89	9.86	11.18	9.58
Steiger																			
Wildcat III ST-210 & RC-210	1237	Die.	22260	None	8	4.500x5.000	636	2800	....	....	....	171.44	5.84	21052	....	....	12.71	12.58	10.82
Bearcat II	1162	Die.	23020	1585	8	4.500x5.000	636	2800	....	....	....	180.69	6.57	22622	....	....	12.79	12.37	10.82
Bearcat III ST-220	1246	Die.	29380	None	6	5.500x6.000	855	2100	....	....	....	175.58	4.84	26936	....	....	13.24	12.80	11.04
Bearcat III ST-225(1)	1414	Die.	30005	465	6	4.75x6.0	638	2100	....	....	....	197.69	5.47	28805	....	....	13.99	13.54	11.65
Bearcat III PT225	1272	Die.	30825	None	6	4.75x6.00	638	2200	(3)	....	....	180.86	6.33	29749	....	....	12.02	10.80	9.29
Cougar II	1170	Die.	27995	1305	6	4.750x6.000	638	2200	....	....	....	228.15	4.44	26432	....	....	13.15	12.77	11.59
Cougar III ST-250	1239	Die.	29800	None	6	4.750x6.000	638	2200	....	....	....	210.35	6.38	26612	....	....	12.74	11.90	10.36
Cougar III ST-250(2)	1452	Die.	29965	None	6	4.75x6.0	638	2100	....	....	....	215.98	5.39	26866	....	....	15.16	14.40	12.76
Cougar III ST-251	1233	Die.	30840	None	6	5.500x6.000	855	2100	....	....	....	205.82	7.98	26880	....	....	14.74	13.69	11.60
Cougar III PT270	1273	Die.	32210	1495	6	4.75x6.00	638	2200	(3)	....	....	219.39	6.29	30122	....	....	12.73	11.81	10.23
Cougar III ST-270	1238	Die.	29930	None	6	4.750x6.000	638	2200	....	....	....	228.96	6.38	25371	....	....	13.32	12.62	10.96
Cougar III PTA 280	1402	Die.	33675	2895	6	5.5x6.0	855	2100	....	....	....	224.92	5.54	32625	....	....	13.74	12.54	10.44
Cougar III PTA-280	1413	Die.	33150	2370	6	5.4x6.5	893	2100	....	....	....	236.55	7.07	32085	....	....	14.24	13.14	11.19
Cougar III ST-280	1401	Die.	33105	2625	6	5.5x6.0	855	2100	....	....	....	236.82	5.37	31517	....	....	14.55	13.20	11.05
Cougar III ST-280	1412	Die.	33345	2705	6	5.4x6.5	893	2100	....	....	....	246.13	6.28	32099	....	....	14.86	13.76	11.89

Panther III ST-310	1235	Die.	30850	None	6	5.500x6.000	855	2100	....	....	....	261.78	7.90	26757	....	....	13.95	13.09	11.02
Panther III ST-325	1236	Die.	31080	None	6	5.400x6.500	893	2100	....	....	....	281.94	7.93	28189	....	....	14.82	14.19	12.64
Panther III PTA-325	1355	Die.	33960	3140	6	5.4x6.5	893	2100	....	....	....	274.88	5.34	31876	....	....	14.26	13.45	11.55
Panther III PT350	1274	Die.	34000	2855	8	5.4x4.75	903	2600	(3)	....	....	305.48	6.51	32276	....	....	14.91	13.75	11.32
Panther CP-1325 12 Sp.	1453	Die.	35870	410	6	5.40x6.50	893	2100	299.10	1000	299.10	275.74	6.24	33802	16.55	13.59	14.71	13.86	11.95
Panther CP-1360 12 Sp.	1455	Die.	39120	3860	6	5.40x6.50	893	2100	334.33	1000	334.33	300.05	6.21	36123	16.75	13.78	15.11	13.81	11.85
Panther CP-1400 12 Sp.	1464	Die.	43615	7165	6	5.40x6.50	893	2100	....	....	....	343.73	7.36	40580	....	....	16.11	14.12	12.07
Panther KP-1325 12 Sp.	1465	Die.	35815	605	6	5.50x6.00	855	2100	301.21	1000	301.21	283.90	6.24	34267	17.38	13.97	16.48	14.15	11.84
Panther KP-1360 12 Sp.	1456	Die.	39570	4090	6	5.50x6.00	855	2100	326.12	1000	326.12	316.04	5.53	36771	17.39	14.15	16.37	14.27	12.15
Panther KP-1400 12 Sp.	1463	Die.	43175	6640	6	5.50x6.00	855	2100	....	....	....	348.78	6.11	41834	....	....	17.06	14.54	12.10
Tiger II	1169	Die.	29930	2330	8	5.500x4.750	903	2600	....	....	....	270.21	6.73	28097	....	....	13.88	12.70	10.61
Tiger III ST450	1282	Die.	47370	4645	6	6.25x6.25	1150	2100	....	....	....	372.61	6.56	42610	....	....	14.18	12.70	10.56

(1) SN. 109-00328 and higher. (2) SN. 104-00331 and higher. (3) Equipped with hydrostatic PTO-105HP at 1000 RPM.

Versatile

555 Diesel	1331	Die.	25980	6330	8	4.625x4.125	555	2850	182.25	1000	184.35	154.20	4.56	23533	16.33	11.15	12.96	11.17	8.83
835 12 Speed	1356	Die.	28000	3720	6	5.5x6.0	855	2100	198.23	1009	198.23	179.07	6.13	26360	15.13	11.36	13.16	11.87	9.70
835 Series 3 12 Speed SN.835-83-036769 & higher	1482	Die.	27980	3595	6	5.50x6.00	855	2100	200.30	1000	200.30	190.67	5.11	25687	15.82	11.86	16.11	12.74	10.45
875 Diesel	1279	Die.	29500	4980	6	5.5x6.0	855	2100	248.07	1008	248.07	228.35	9.12	24457	15.45	11.76	13.60	12.28	10.40
875 Diesel	1332	Die.	29480	4160	6	5.5x6.0	855	2100	247.16	1008	247.16	221.66	4.86	26795	16.06	12.02	14.35	12.53	10.34
875 Series 3 12 Speed SN. 875-83-057906 & higher	1483	Die.	29500	3870	6	5.50x6.00	855	2100	252.67	1000	252.67	234.67	5.88	26725	16.82	13.06	16.62	13.73	11.82
895 Diesel, 12 Speed	1335	Die.	32500	7880	6	5.5x6.0	855	2100	....	....	....	261.63	6.45	29402	....	....	15.15	13.72	11.57
1150 8 Speed	1462	Die	46500	11360	6	6.25x6.25	1150	2100	....	....	....	420.03	7.02	43052	....	....	17.00	14.64	12.35

White

2-30 8 Speed	1373	Die.	3853	848	3	3.386x3.386	91.4	2600	28.33	540	24.50	25.81	8.35	2816	12.03	10.27	10.77	11.42	9.61
2-35 8 Speed	1374	Die.	3970	800	3	3.386x4.02	108.4	2400	32.84	540	30.94	30.37	8.00	2978	12.68	10.86	11.23	11.73	10.35
2-45 20 Speed	1395	Die.	6630	660	4	3.858x3.62	169.3	2250	43.73	540	36.62	37.32	3.97	4455	12.70	11.25	10.96	11.00	9.66
2-50 Field Boss	1231	Die.	6880	2325	3	3.940x4.330	158	2500	47.02	540	43.94	41.88	4.80	5640	15.80	13.03	13.26	13.49	11.97
2-55 16 Speed	1466	Die.	7055	860	4	4.02x3.94	199.4	2200	53.32	540	45.74	48.74	4.98	5037(1)	14.89	12.38	13.35	13.21	11.39
2-60 Field Boss	1232	Die.	8990	3830	4	3.940x4.330	211	2400	63.22	540	54.35	54.78	5.07	7352	17.63	13.82	14.40	13.87	11.93
2-62 20 Speed	1396	Die.	6875	635	4	4.016x4.33	219	2200	61.46	540	54.25	51.63	6.05	4695	16.31	13.85	13.76	13.49	12.08
2-65 16 Speed	1467	Die.	7110	790	4	4.02x4.65	235	2200	62.50	540	55.40	56.85	6.66	4827(2)	16.19	12.91	13.94	13.20	11.29
2-70 Diesel	1212	Die.	9630	1000	6	3.875x4.000	283	2200	70.71	994	70.71	59.47	6.40	7550	14.56	12.28	11.92	12.13	10.72
2-75 16 Speed	1486	Die.	9625	1705	6	4.016x4.33	329	2200	75.39	1000	75.64	65.05	6.04	6487(3)	15.86	12.02	13.07	12.21	10.48
2-85 Diesel	1213	Die.	12280	580	6	3.875x5.000	354	2200	85.54	1007	85.54	71.93	8.13	9309	14.62	11.72	12.24	11.64	9.71
2-88 18 Speed	1487	Die.	13615	None	6	3.875x5.00	354	2200	86.78	1000	86.78	74.67	6.51	9486(4)	15.71	12.69	13.62	12.74	10.79
2-105 Field Boss	1181	Die.	11810	None	6	3.875x5.000	354	2200	105.61	1007	105.61	90.81	6.34	9212	15.76	12.02	12.89	11.95	10.00
2-110 18 Speed	1468	Die.	13955	None	6	3.875x5.00	354	2200	110.52	1000	110.52	96.08	6.56	9500(5)	16.77	13.27	14.44	13.08	10.84
2-135	1275	Die.	16360	2225	6	4.56x4.87	478	2200	137.64	1000	138.03	117.67	8.93	11907	14.91	11.38	12.31	11.42	9.73
2-150 Field Boss	1182	Die.	16940	None	6	4.750x5.500	585	2200	147.49	1007	147.49	127.49	5.63	15059	14.46	11.90	12.07	12.14	10.63
4-150 Field Boss	1159	Die.	16960	None	8	4.500x5.000	636	2800	151.87	1000	152.45	133.34	6.34	16925	15.09	11.45	12.46	11.34	9.21
2-155	1276	Die.	16650	None	6	4.56x4.87	478	2200	157.73	1000	162.37	139.68	9.04	14512	15.38	11.91	12.69	11.53	9.97
4-175 Field Boss	1375	Die.	20420	None	8	4.5x5.0	636	2600	151.69	1000	151.29	133.72	6.39	19905	15.50	11.70	12.96	11.98	10.01
2-180	1287	Die.	18280	None	8	4.5x5.0	636	2800	181.89	1000	181.89	163.64	6.50	15499	14.38	11.66	12.85	12.48	10.56
4-180 Field Boss	1184	Die.	20600	None	8	4.500x5.000	636	2800	181.07	1000	182.30	156.54	4.59	20469	14.19	11.47	11.79	11.56	9.98
4-210 Field Boss	1318	Die.	23735	None	8	4.5x5.0	636	2800	182.44	1000	182.44	162.25	5.89	22934	14.26	11.53	12.34	12.10	10.25

(1) 6318 with front wheel drive engaged. (2) 6187 with front drive engaged. (3) 8028 with front drive engaged. (4) 12632 with front drive engaged. (5) 12944 with front drive engaged.

Yanmar

YM240 Diesel	1199	Die.	3305	1355	2	3.543x3.543	70	2400	19.76	540	18.75	16.60	4.86	2442	15.05	12.64	12.35	11.95	10.37
YM226D Diesel	1442	Die.	3380	1080	3	2.95x3.35	68.7	2600	19.42	540	17.87	16.14	4.78	2073	15.07	11.67	11.92	10.93	9.26
YM276D Diesel	1443	Die.	4110	1405	3	3.31x3.35	86.2	2600	23.00	540	22.82	18.93	5.78	2412	14.35	11.06	11.08	10.57	8.90
YM336D Diesel	1444	Die.	5020	1615	3	3.31x3.54	91.3	2600	26.96	540	25.63	23.00	6.28	3086	14.27	11.32	11.39	10.66	9.64